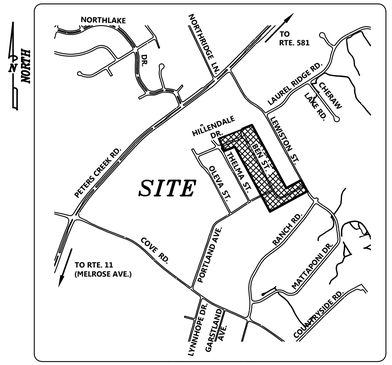
PORTLAND AVENUE, BEN STREET AND HILLENDALE DRIVE IMPROVEMENTS

CITY OF ROANOKE, VIRGINIA

DISTURBED AREA PER INLET	
INLET	DISTURBED AREA
K1	N/A – MANHOLE
K2	N/A – MANHOLE
K3	9,583.20 SF
K4	13,939.20 SF
K5	7,405.20 SF
L1	10,890.00 SF
L2	6,098.40 SF
L3	10,890.00 SF
M1	4,791.60 SF
N1	N/A – MANHOLE
N2	N/A – MANHOLE
N3	N/A – MANHOLE
N4	N/A – MANHOLE
N5	N/A – MANHOLE
N6	5,662.80 SF
N7	N/A – MANHOLE
N8	10,890.00 SF
N9	4,356.00 SF
O1	6,098.40 SF
O2	4,356.00 SF
P1	5,227.20 SF



VICINITY MAP:
SCALE: 1"=1200'

GENERAL NOTES:

1. OWNER REPRESENTATIVE: PRISCILLA CYGIELNIK
   CITY OF ROANOKE – ENGINEERING DEPARTMENT
   215 CHURCH AVENUE, S.W. – ROOM 350
   ROANOKE, VA 24011
2. ALL WORK PROPOSED IN THESE PLANS IS TO BE DONE WITHIN PUBLIC RIGHTS–OF–WAY OR EASEMENTS OBTAINED.
3. NO GRAVES, STRUCTURES, OR OBJECTS MARKING A PLACE OF HUMAN BURIAL WERE FOUND AT TIME OF SURVEY.
4. THE SUBJECT LANDS DEPICTED HEREON DO NOT LIE WITHIN A F.E.M.A. DESIGNATED 100–YEAR FLOOD HAZARD ZONE. THE SUBJECT LANDS LIE WITHIN "UNSHADED ZONE X – OTHER AREAS", AS DEFINED BY F.E.M.A. & AS SHOWN ON F.I.R.M. MAP NO. 51161C0153G, EFFECTIVE DATE OF SEPTEMBER 28, 2007. THIS DETERMINATION HAS BEEN MADE BY GRAPHIC METHODS ONLY. NO ELEVATION STUDY HAS BEEN PERFORMED AS A PART OF THIS PROJECT.
5. PLANNING AREAS
   TOTAL DISTURBED AREA: ±23,983 SF (0.55 AC.)
6. A PRE–CONSTRUCTION MEETING WITH THE CITY WILL BE HELD PRIOR TO CONSTRUCTION.
7. ALL CONSTRUCTION WILL BE IN ACCORDANCE WITH CITY OF ROANOKE STANDARDS AND SPECIFICATIONS.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MEET COMPLIANCE REQUIREMENTS WITH SECTION 59.1–406, ET SEQ. OF THE CODE OF VIRGINIA (OVERHEAD HIGH VOLTAGE LINES SAFETY ACT).
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS BEFORE BEGINNING CONSTRUCTION.
10. UNLESS SHOWN OR SPECIFIED OTHERWISE, METHODS AND MATERIALS SHALL BE IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS AND VDOT ROAD AND BRIDGE SPECIFICATIONS LATEST EDITIONS. SHOULD A LOCALITY HAVE SPECIFICATIONS OF ITS OWN, THE MORE STRINGENT SHALL APPLY.
11. ALL ACTIVITIES IN PUBLIC RIGHT–OF–WAY SHALL CONFORM TO VDOT WORK AREA PROTECTION MANUAL (MOST RECENT EDITION)
12. BY THE END OF CONSTRUCTION, PROVIDE LEGIBLE, SURVEYED MARK–UPS OF AS–BUILT SITE CONSTRUCTION ITEMS ON SITE PLANS TO THE OWNER FOR PREPARATION OF SITE RECORD DRAWINGS.
13. CONTRACTOR SHALL ENSURE THAT EGRESS FOR FIRE ACCESS FOR THE SITE IS MAINTAINED AT ALL TIMES.
14. MAINTAIN EMERGENCY SERVICE AND DELIVERY VEHICLE ACCESS TO THE SURROUNDING AREA AND COORDINATE THIS WITH THE OWNER.
15. THESE PLANS SHALL BE USED IN CONJUNCTION WITH THE TECHNICAL SPECIFICATIONS AND PROJECT MANUAL.
16. ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN THE DRAWINGS SHALL BE IMMEDIATELY REPORTED TO THE OWNER'S REPRESENTATIVE, WHO SHALL PROMPTLY CORRECT SUCH INCONSISTENCIES OR AMBIGUITIES. WORK DONE BY THE CONTRACTOR WITHOUT DIRECTION AFTER HIS DISCOVERY OF SUCH INCONSISTENCIES OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.
17. CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN THAT MEETS ALL VDOT AND CITY OF ROANOKE STANDARDS AND REQUIREMENTS.

SHEET INDEX	
SHEET #	SHEET TITLE
C0-01	COVER SHEET
C1-00	EXISTING CONDITIONS AND DEMOLITION PLAN KEY
C1-01	EXISTING CONDITIONS AND DEMOLITION PLAN AREA G
C1-02	EXISTING CONDITIONS AND DEMOLITION PLAN AREA H
C1-03	EXISTING CONDITIONS AND DEMOLITION PLAN AREA I
C1-04	EXISTING CONDITIONS AND DEMOLITION PLAN AREA J
C3-01	GRADING AND STORM PLAN AREA G
C3-02	GRADING AND STORM PLAN AREA H
C3-03	GRADING AND STORM PLAN AREA I
C3-04	GRADING AND STORM PLAN AREA J
C3-05	STORM PROFILES
C3-06	STORM DETAILS
C3-07	SITE DETAILS
C3-08	TYPICAL ROAD SECTIONS
C5-01	C5-01 EROSION AND SEDIMENT CONTROL PLAN AREA G
C5-02	C5-02 EROSION AND SEDIMENT CONTROL PLAN AREA H
C5-03	C5-03 EROSION AND SEDIMENT CONTROL PLAN AREA I
C5-04	C5-04 EROSION AND SEDIMENT CONTROL PLAN AREA J
C5-05	EROSION AND SEDIMENT CONTROL DETAILS
C5-06	EROSION AND SEDIMENT CONTROL NOTES

LEGEND:

- PROPERTY LINE
- 2100 EXISTING 1' CONTOURS
- 1200 PROPOSED 1' CONTOURS
- 90.56 EXISTING SPOT ELEVATION
- 90.56 PROPOSED SPOT ELEVATION
- 90.56 / 90.56 PROPOSED TOP CURB ELEVATION / PROPOSED BOTTOM CURB ELEVATION
- 8"S EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- 6"W EXISTING WATERLINE
- PROPOSED WATERLINE
- 24"ST EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING EDGE OF PAVEMENT
- SEE PAVEMENT LEGEND FOR TYPE PROPOSED PAVEMENT
- EXISTING BUILDING
- PROPOSED BUILDING
- OHE EXISTING OVERHEAD ELECTRIC
- UGE EXISTING BURIED ELECTRIC
- TV EXISTING BURIED CABLE TV LINE
- G EXISTING GAS LINE
- TEL EXISTING BURIED TELEPHONE LINE
- EXISTING FENCE LINE
- EXISTING TREELINE
- BENCHMARK LOCATION
- TO BE REMOVED
- TELE PED EXISTING TELEPHONE PEDESTAL
- GV EXISTING GAS VALVE
- GM EXISTING GAS METER
- LP EXISTING LIGHT POLE
- EXISTING WELL
- DRILL HOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- F# PROPOSED FIRE HYDRANT LABEL
- WV EXISTING WATER VALVE
- PROPOSED WATER VALVE AND REDUCER
- WM EXISTING WATER METER
- PROPOSED WATER METER
- CO EXISTING SEWER CLEANOUT
- SS–# PROPOSED SEWER CLEANOUT
- SMH EXISTING SEWER MANHOLE
- #X PROPOSED SAN. SEW. STRUCTURE LABEL
- X# PROPOSED STRM. SEW STRUCTURE LABEL
- EXISTING SHRUB
- EXISTING TREE
- PROPOSED TREE
- EXISTING SIGN
- PROPOSED SIGN
- TP BORE HOLE/TEST PIT
- CONTROL POINT
- IRF IRON ROD FOUND
- IRS IRON ROD SET
- PROPERTY CORNER

ABBREVIATION LEGEND:

@	AT	LB.	POUND
A/C	AIR CONDITIONER	M	METER
AC.	ACRE(S)	M.B.L.	MINIMUM BUILDING LINE
A.L.	APPROXIMATE LOCATION	MAG.	MAGISTERIAL
ALT.	ALTERNATE	MAX.	MAXIMUM
APPROX.	APPROXIMATE	MB	MAIL BOX
AVG.	AVERAGE	MH	MANHOLE
B.M.	BENCHMARK	MI.	MILE
BC	BOTTOM OF CURB	MIN.	MINIMUM
BLVD.	BOULEVARD	MON.	MONUMENT
BSMT	BASEMENT	MTL.	METAL
BW	BOTTOM OF WALL	N.I.C.	NOT IN CONTRACT
C.F.	CUBIC FEET	N.S.	NORFOLK & SOUTHERN
C.I.	CURB INLET	N.T.S.	NOT TO SCALE
C.M.U	CONCRETE MASONRY UNIT	N/F	NOW OR FORMERLY
C.V.	CHECK VALVE	NBL	NORTHBOUND LANE
C.Y.	CUBIC YARD	NO./#	NUMBER
CAL.	CALIPER	NRV	NEW RIVER VALLEY
CATV	CABLE TELEVISION	O.D.	OUTSIDE DIAMETER
CHD	CHORD	O.F.C.I.	OWNER FURNISHED CONTRACTOR INSTALLED
CMP	CORRUGATED METAL PIPE	OH	OVERHEAD
CO	CLEAN–OUT	OHE	OVERHEAD ELECTRIC
CO.	COUNTY	P.B.	PLAT BOOK
CONC.	CONCRETE	P.U.	PUBLIC UTILITY
CRK.	CREEK	P.U. & D.E.	PUBLIC UTILITY AND DRAINAGE EASEMENT
D.B.	DEED BOOK	P.U.E.	PUBLIC UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT	PE	POLYETHYLENE
DI.	DROP INLET	PED.	PEDESTAL
D.I.P.	DUCTILE IRON PIPE	PG.	PAGE
D.S.	DOWN SPOUT	PROP.	PROPOSED
DECID.	DECIDUOUS	PSI	POUNDS PER SQUARE INCH
DEG.	DEGREES	PVC	POLYVINYLCHLORIDE
DET.	DETAIL	PVMT	PAVEMENT
DFC	DRAINFIELD CORNER	R	RADIUS
DI	DROP INLET	R.R.	RAILROAD
DIA.	DIAMETER	R/W	RIGHT–OF–WAY
DIST.	DISTRICT	RCP	REINFORCED CONCRETE PIPE
DR.	DRIVE	RD.	ROAD
DWG	DRAWING	REF.	REFERENCE
DWLG	DWELLING	REQ'D	REQUIRED
E.G.	EDGE OF GRAVEL	RET.	RETAINING
E.P.	EDGE OF PAVEMENT	REV.	REVISION
EA.	EACH	RTE.	ROUTE
EBL	EASTBOUND LANE	RWY.	RAILWAY
ELEV.	ELEVATION	S.D.	STORM DRAIN
EOW	EDGE OF WATER	SDL	SIGHT DISTANCE LEFT
ESMT.	EASEMENT	SDMH	STORM DRAIN MANHOLE
EVG.	EVERGREEN	SDR	SIGHT DISTANCE RIGHT
EXIST.	EXISTING	S.F.	SQUARE FEET
EXT.	EXTENSION	SBL	SOUTHBOUND LANE
F.E.M.A.	FEDERAL EMERGENCY MANAGEMENT AGENCY	SCH	SCHEDULE
F.H.	FIRE HYDRANT	SHT.	SHEET
F.I.R.M.	FLOOD INSURANCE RATE MAP	SPEC.	SPECIFICATION
F/L	FLOW LINE	SPTK	SEPTIC TANK
FF	FINISH FLOOR	SSEW	SANITARY SEWER
FND	FOUND	SSMH	SANITARY SEWER MANHOLE
FR	FRAME	ST.	STREET
FT.	FEET	STA.	STATION
G.M.	GAS METER	STD.	STANDARD
G.V.	GATE VALVE	STY.	STORY
GNI	GAY AND NEEL, INC.	SWME	STORMWATER MANAGEMENT EASEMENT
GPM	GALLONS PER MINUTE	SWMF	STORMWATER MANAGEMENT FACILITY
GRAV.	GRAVEL	TC	TOP OF CURB/CONCRETE
GRD	GROUND	TCP	TERRA COTTA PIPE
HP	HIGH POINT	TEL.	TELEPHONE
H.U.D.	HOUSING AND URBAN DEVELOPMENT	TOB	TOP OF BANK
H/C	HANDICAPPED	TOS	TOP OF SLOPE
HCR	HANDICAPPED RAMP	TW	TOP OF WALL
HDPE	HIGH DENSITY POLYETHYLENE PIPE	TYP.	TYPICAL
HR	HANDRAIL	U.G.	UNDERGROUND
HW	HEADWALL	U.P.	UTILITY POLE
HYD.	HYDRANT	U.S.	UNITED STATES
I.D.	INSIDE DIAMETER	VA.	VIRGINIA
IN.	INCH	VDOT	VIRGINIA DEPARTMENT OF TRANSPORTATION
INST.	INSTRUMENT	VESCH	VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK
INT.	INTERSECTION	W.B.	WILL BOOK
		W.W.F.	WELDED WIRE FABRIC

GENERAL UTILITY NOTES:

1. ALL WATER AND SANITARY SEWER CONSTRUCTION SHALL CONFORM TO THE WESTERN VIRGINIA REGIONAL DESIGN AND CONSTRUCTION STANDARDS, LATEST EDITION, AS NECESSARY TO MEET THE SPECIFIC REQUIREMENTS OF THE WORK.
2. CONTRACTOR IS RESPONSIBLE FOR ALL WATERLINE RELOCATIONS.
3. IF WATERLINE IS RELOCATED BELOW A STORM DRAIN, THEN CONCRETE PIERS SHALL BE PROVIDED.
4. CONTRACTOR SHALL COORDINATE ANY GAS LINE RELOCATIONS WITH THE UTILITY OWNER.

CITY OF ROANOKE CONSTRUCTION NOTES:

FAILURE TO COMPLY WITH THE CONSTRUCTION PROCEDURE REQUIREMENTS LISTED BELOW MAY RESULT IN THE COSTLY REMOVAL OF STRUCTURES, TIME DELAYS OR THE ISSUANCE OF A STOP WORK ORDER.

CONSTRUCTION PROCEDURE REQUIREMENTS

1. RIGHT–OF–WAY EXCAVATION PERMIT – PRIOR TO THE COMMENCEMENT OF ANY DIGGING, ALTERATION OR CONSTRUCTION WITHIN THE PUBLIC RIGHT–OF–WAY (STREETS, ALLEYS, PUBLIC EASEMENTS), A RIGHT–OF–WAY EXCAVATION PERMIT SHALL BE APPLIED FOR AND OBTAINED BY THE CONTRACTOR FROM THE CITY OF ROANOKE.
2. LAND DISTURBANCE PERMIT – AN APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR ANY BORROW/FILL SITES ASSOCIATED WITH THE PROJECT MUST BE SUBMITTED PRIOR TO THE ISSUANCE OF A LAND DISTURBANCE PERMIT.
3. PLANS AND PERMITS – A COPY OF THE PLANS AS APPROVED BY THE CITY (SIGNED BY THE PROPER CITY OFFICIALS) AND ALL PERMITS ISSUED BY THE CITY SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES OF ONGOING CONSTRUCTION.
4. LOCATION OF UTILITIES – THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
5. CONSTRUCTION ENTRANCE – THE CONTRACTOR SHALL INSTALL AN ADEQUATE CONSTRUCTION ENTRANCE FOR ALL CONSTRUCTION RELATED EGRESS FROM THE SITE. SIZE AND COMPOSITION OF CONSTRUCTION ENTRANCE SHALL BE AS SHOWN ON THE PLANS.
6. STREETS TO REMAIN CLEAN – IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT THE PUBLIC STREET ADJACENT TO THE CONSTRUCTION ENTRANCE REMAINS FREE OF MUD, DIRT, DUST, AND/OR ANY TYPE OF CONSTRUCTION MATERIALS OR LITTER AT ALL TIMES.
7. BARRICADES/DITCHES – THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL EXCAVATED DITCHES AND SHALL FURNISH AND ENSURE THAT ALL BARRICADES PROPER AND NECESSARY FOR THE SAFETY OF THE PUBLIC ARE IN PLACE.
8. SEWER AND PAVEMENT REPLACEMENT – CONSTRUCTION OF SANITARY SEWERS AND THE REPLACEMENT OF PAVEMENT SHALL BE IN ACCORDANCE WITH APPROVED STANDARDS AND SPECIFICATIONS OF THE CITY OF ROANOKE AND THE WESTERN VIRGINIA WATER AUTHORITY
9. APPROVED PLANS/CONSTRUCTION CHANGES – ANY CHANGE OR VARIATION FROM CONSTRUCTION DESIGN AS SHOWN ON THE OFFICIALLY APPROVED PLANS SHALL BE APPROVED BY THE EROSION AND SEDIMENT CONTROL AGENT PRIOR TO SAID CHANGES OR VARIATION IN CONSTRUCTION BEING MADE.
10. FINAL ACCEPTANCE/CITY – THE OWNER OR DEVELOPER SHALL FURNISH THE CITY OF ROANOKE'S PLANNING BUILDING AND DEVELOPMENT DEPARTMENT WITH A FIELD SURVEYED FINAL CORRECT SET OF AS–BUILT PLANS OF THE NEWLY CONSTRUCTED STORM DRAIN AND/OR STORMWATER MANAGEMENT FACILITIES PRIOR TO FINAL ACCEPTANCE AND ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE CITY. AS–BUILT PLANS SHALL BE PROVIDED IN THE STATE PLANE VIRGINIA SOUTH COORDINATE SYSTEM, NAD 1983, FIPS 4502 FEET, US SURVEY FEET, DATUM NA 83, IN THE FORM OF 1 PAPER COPY AND 1 DIGITAL AUTOCAD FILE.

GENERAL GRADING NOTES:

1. EROSION AND SEDIMENT CONTROL MEASURES SHOWN ARE TO BE USED IN CONJUNCTION WITH THE EROSION AND SEDIMENT CONTROL NARRATIVE APPROVED FOR THIS PLAN. THE NARRATIVE INCLUDES ADDITIONAL MEASURES SUCH AS DUST CONTROL, TEMPORARY SEEDING, PERMANENT SEEDING AND MULCHING.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE FROM ALL AREAS OF THE SITE.
3. EXCAVATION IS UNCLASSIFIED.

GAY AND NEEL, INC.
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PORTLAND AVENUE, BEN STREET AND HILLENDALE DRIVE IMPROVEMENTS
CITY OF ROANOKE, VIRGINIA

COMMONWEALTH OF VIRGINIA
JOHN T. NEEL
Lic. No. 035780
09/20/2016
PROFESSIONAL ENGINEER

REVISIONS		
NO.	COMMENTS	DATE

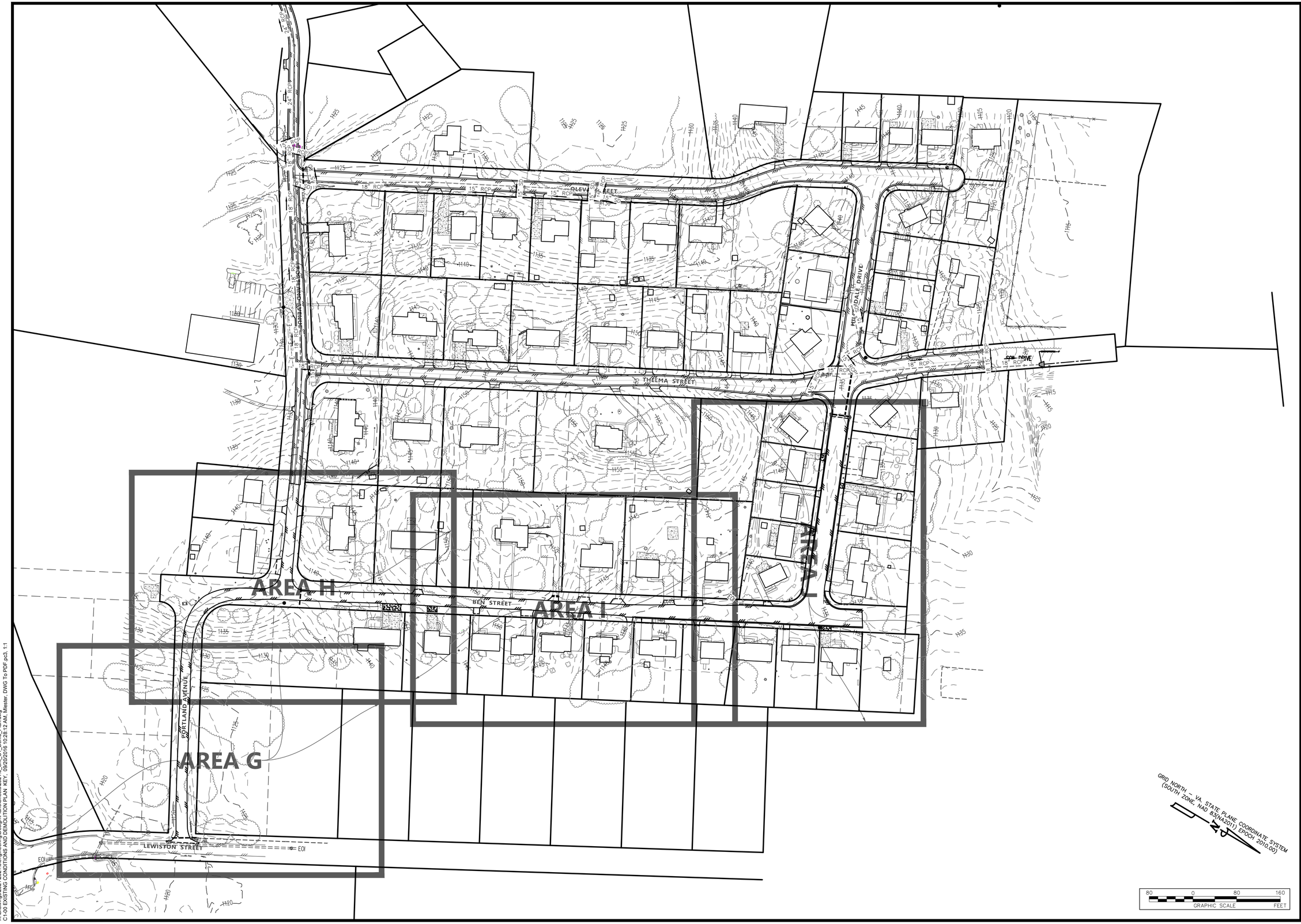
PROJECT TEAM	
PIC	JOHN T. NEEL, PE
PM	MATTHEW P. TOMLINSON, PE
DESIGN	SEC, MBL

ISSUE DATE: 09/20/2016

GNI JOB NO.: 2521.3

SHEET TITLE: COVER SHEET

SHEET NUMBER: C0-01



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DESIGN	SEC, MBL

ISSUE DATE: 09/20/2016

GNI JOB NO.: 2521.3

SHEET TITLE: EXISTING CONDITIONS AND DEMOLITION PLAN KEY

SHEET NUMBER: C1-00

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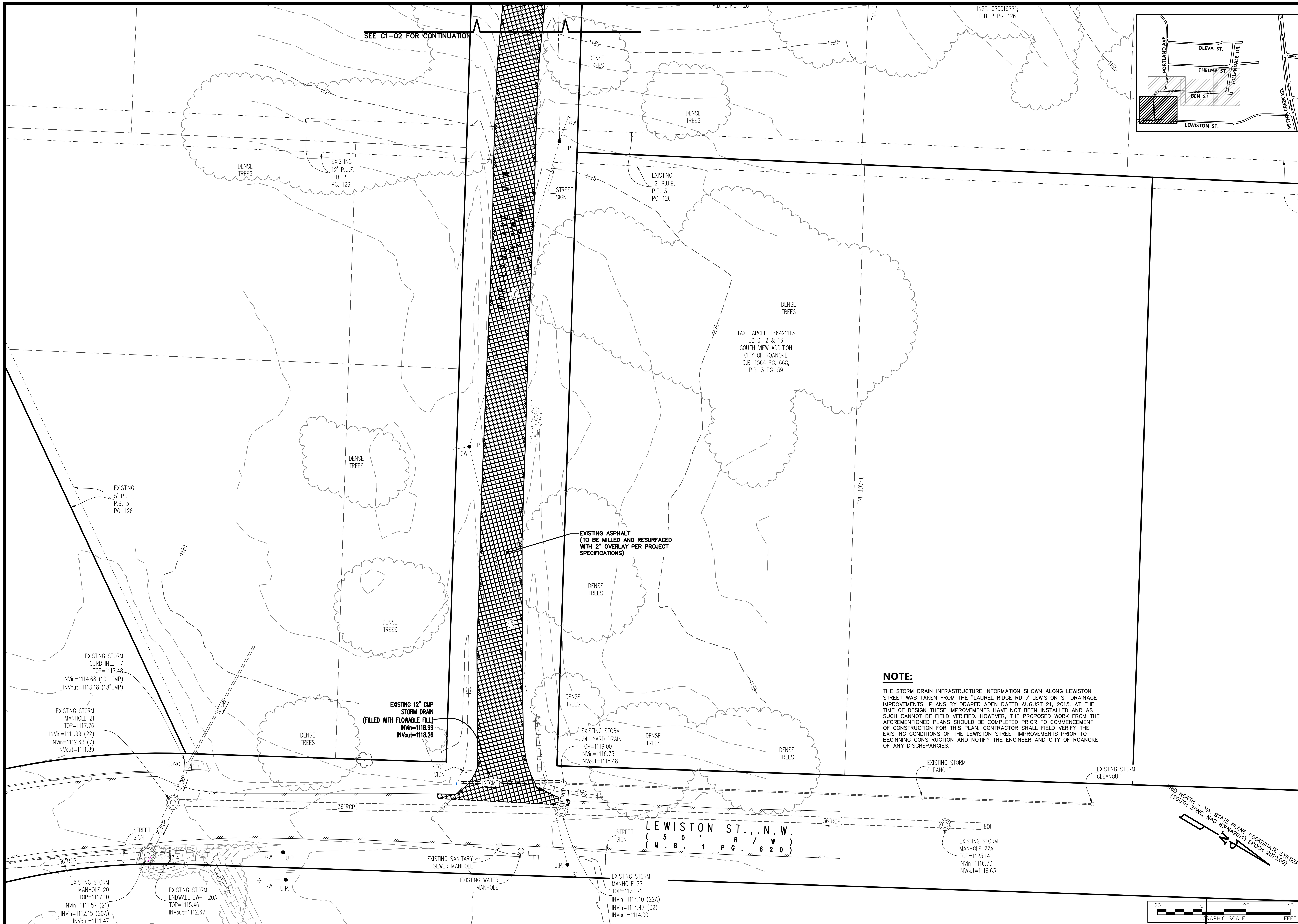

NOTE:

THE STORM DRAIN INFRASTRUCTURE INFORMATION SHOWN ALONG LEWISTON STREET WAS TAKEN FROM THE "LAUREL RIDGE RD / LEWISTON ST DRAINAGE IMPROVEMENTS" PLANS BY DRAPER ADEN DATED AUGUST 21, 2015. AT THE TIME OF DESIGN THESE IMPROVEMENTS HAVE NOT BEEN INSTALLED AND AS SUCH CANNOT BE FIELD VERIFIED. HOWEVER, THE PROPOSED WORK FROM THE AFOREMENTIONED PLANS SHOULD BE COMPLETED PRIOR TO COMMENCEMENT OF CONSTRUCTION FOR THIS PLAN. CONTRACTOR SHALL FIELD VERIFY THE EXISTING CONDITIONS OF THE LEWISTON STREET IMPROVEMENTS PRIOR TO BEGINNING CONSTRUCTION AND NOTIFY THE ENGINEER AND CITY OF ROANOKE OF ANY DISCREPANCIES.

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ISSUE DATE

09/20/2016

GNI JOB NO.

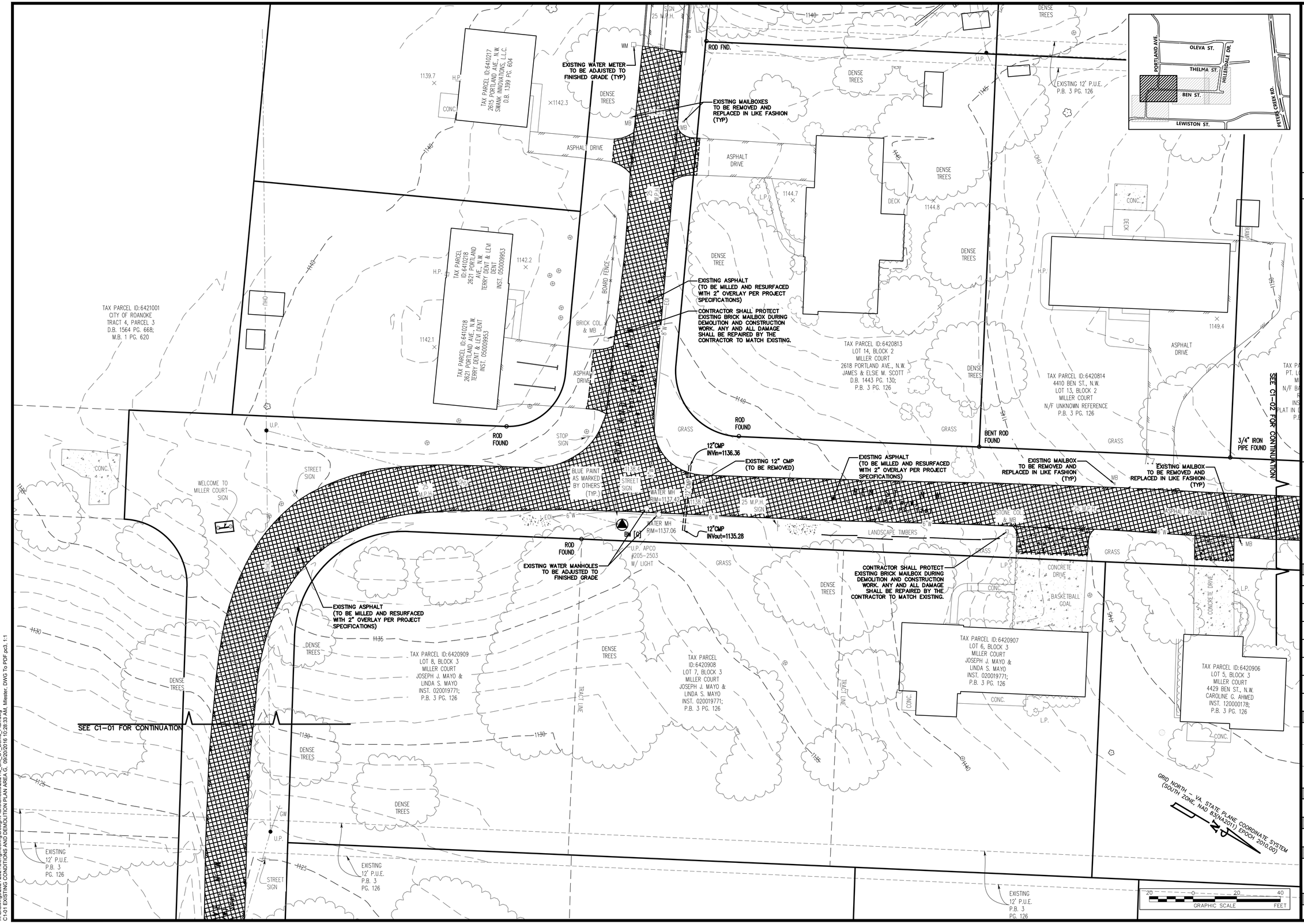
2521.3

SHEET TITLE

EXISTING CONDITIONS AND DEMOLITION PLAN AREA G

SHEET NUMBER

C1-01



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NO.	COMMENTS	DATE

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DESIGN	SEC, MBL

ISSUE DATE: 09/20/2016

GNI JOB NO.: 2521.3

SHEET TITLE: EXISTING CONDITIONS AND DEMOLITION PLAN AREA H

SHEET NUMBER: C1-02

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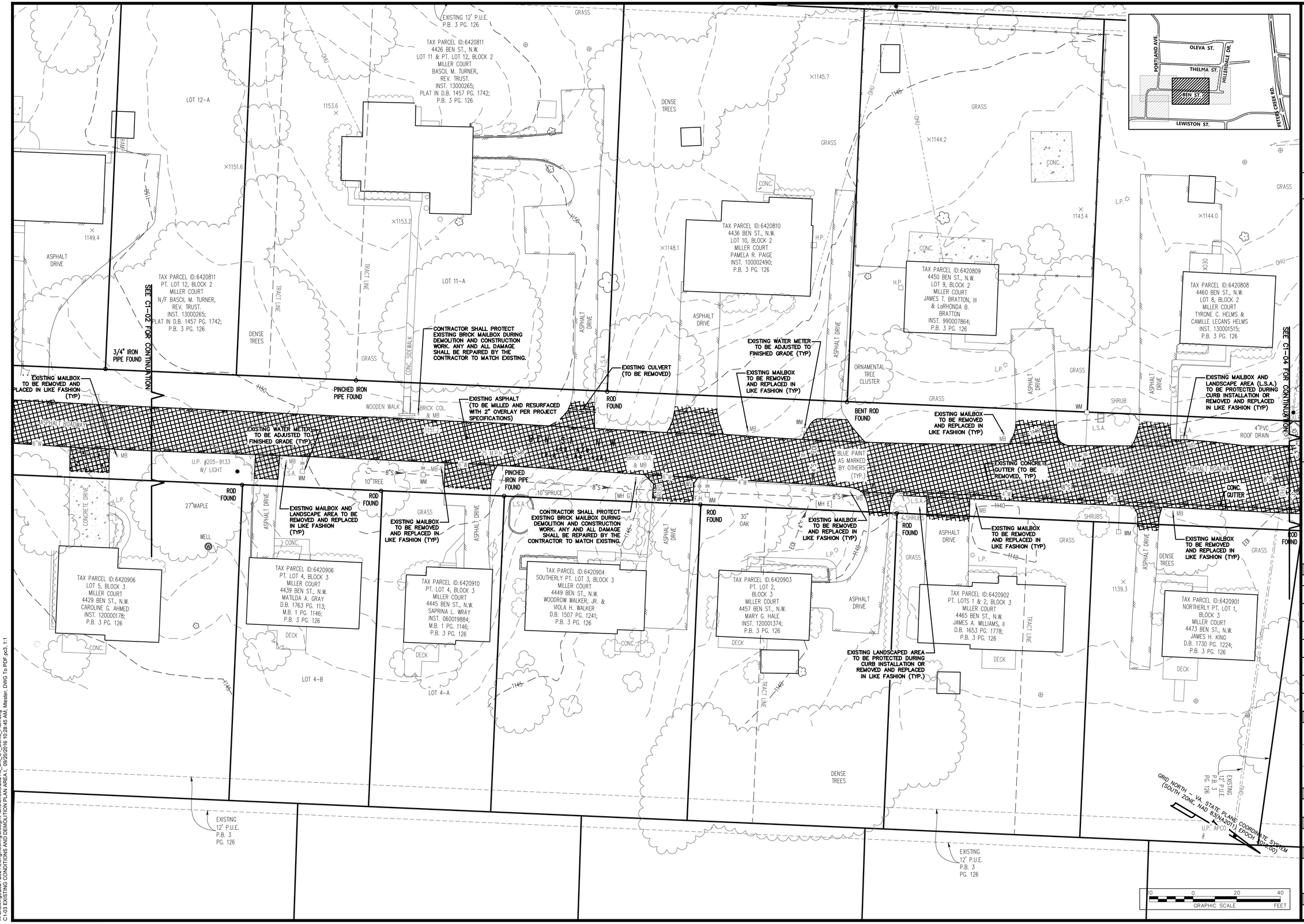

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COMMONWEALTH OF VIRGINIA
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REVISIONS		
NO.	COMMENTS	DATE

PROJECT TEAM	
PIC	JOHN T. NEEL, PE
PM	MATTHEW P. TOMLINSON, PE
DESIGN	SEC, MBL

ISSUE DATE: 09/20/2016

GNI JOB NO.: 2521.3

SHEET TITLE: EXISTING CONDITIONS AND DEMOLITION PLAN AREA I

SHEET NUMBER: C1-03

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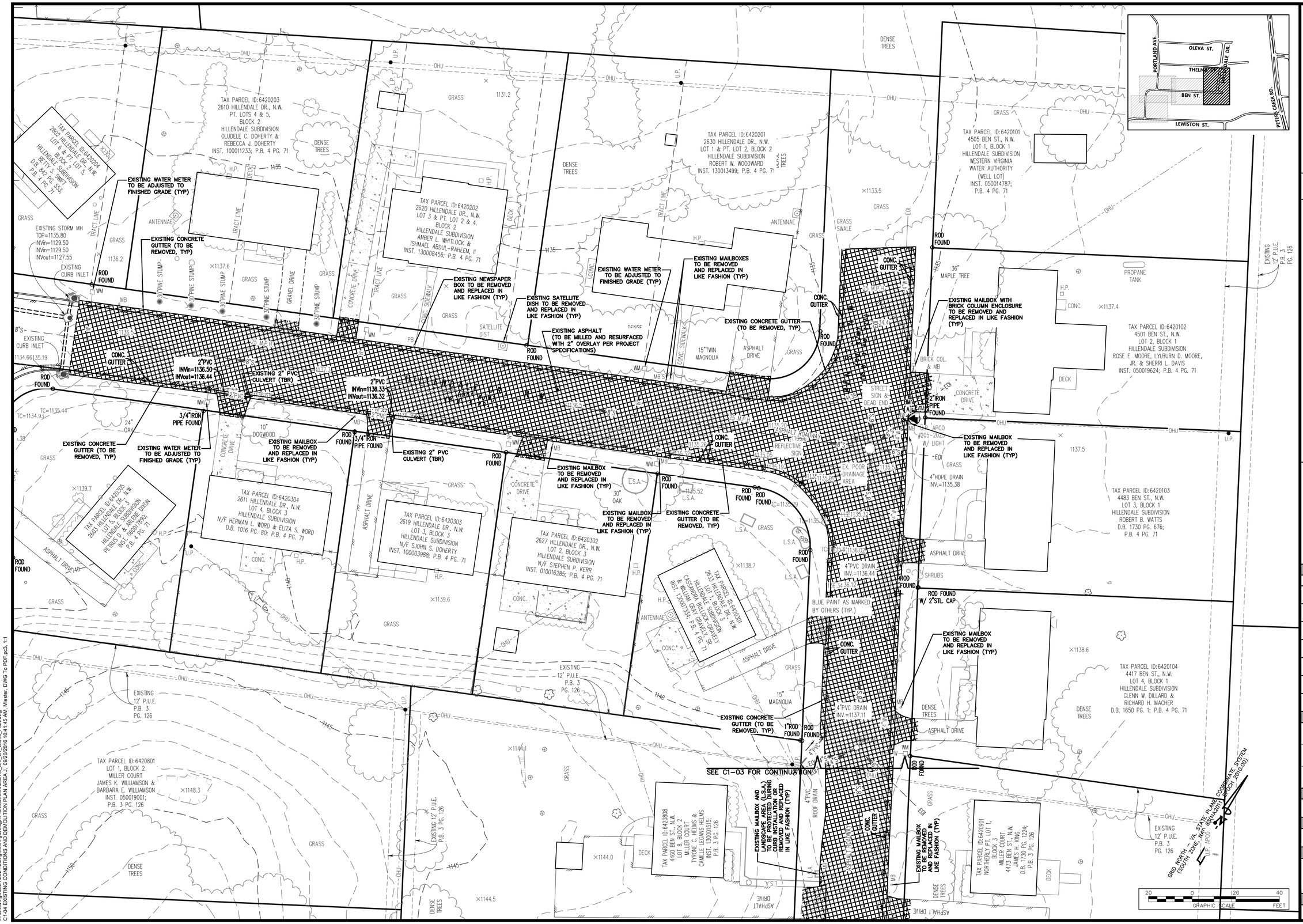

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REVISIONS		
NO.	COMMENTS	DATE

PROJECT TEAM	
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DESIGN	SEC, MBL

ISSUE DATE
09/20/2016

GNI JOB NO.
2521.3

SHEET TITLE
EXISTING CONDITIONS AND DEMOLITION PLAN AREA J

SHEET NUMBER
C1-04

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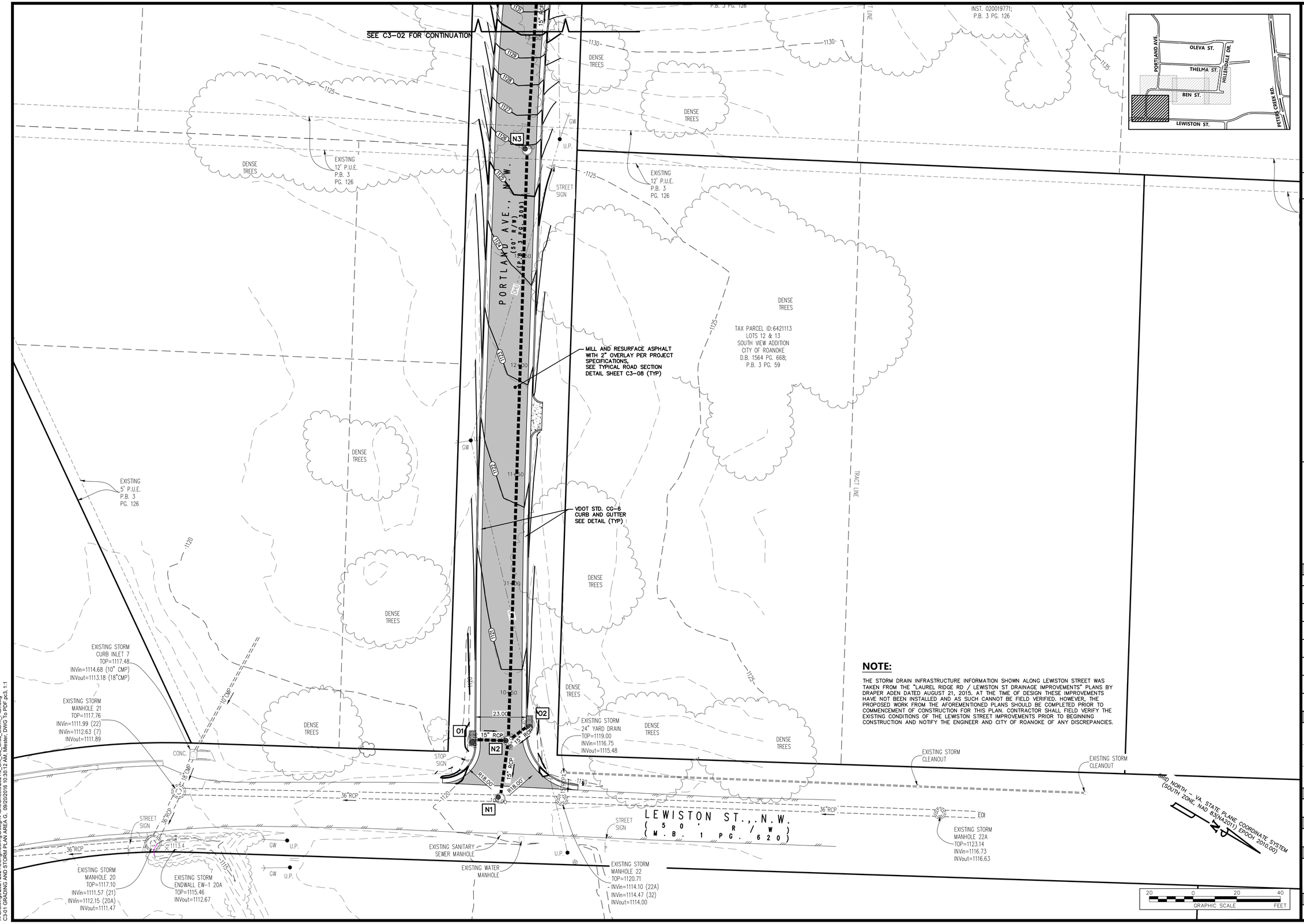

NOTE:

THE STORM DRAIN INFRASTRUCTURE INFORMATION SHOWN ALONG LEWISTON STREET WAS TAKEN FROM THE "LAUREL RIDGE RD / LEWISTON ST DRAINAGE IMPROVEMENTS" PLANS BY DRAPER ADEN DATED AUGUST 21, 2015. AT THE TIME OF DESIGN THESE IMPROVEMENTS HAVE NOT BEEN INSTALLED AND AS SUCH CANNOT BE FIELD VERIFIED. HOWEVER, THE PROPOSED WORK FROM THE AFOREMENTIONED PLANS SHOULD BE COMPLETED PRIOR TO COMMENCEMENT OF CONSTRUCTION FOR THIS PLAN. CONTRACTOR SHALL FIELD VERIFY THE EXISTING CONDITIONS OF THE LEWISTON STREET IMPROVEMENTS PRIOR TO BEGINNING CONSTRUCTION AND NOTIFY THE ENGINEER AND CITY OF ROANOKE OF ANY DISCREPANCIES.

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PORTLAND AVENUE, BEN STREET AND HILLENDALE DRIVE IMPROVEMENTS

CITY OF ROANOKE, VIRGINIA

COMMONWEALTH OF VIRGINIA
JOHN T. NEEL
Lic. No. 035780
09/20/2016
PROFESSIONAL ENGINEER

REVISIONS		
NO.	COMMENTS	DATE

PROJECT TEAM	
PIC	JOHN T. NEEL, PE
PM	MATTHEW P. TOMLINSON, PE
DESIGN	SEC, MBL

ISSUE DATE: 09/20/2016

GNI JOB NO.: 2521.3

SHEET TITLE: GRADING AND STORM PLAN AREA G

SHEET NUMBER: C3-01

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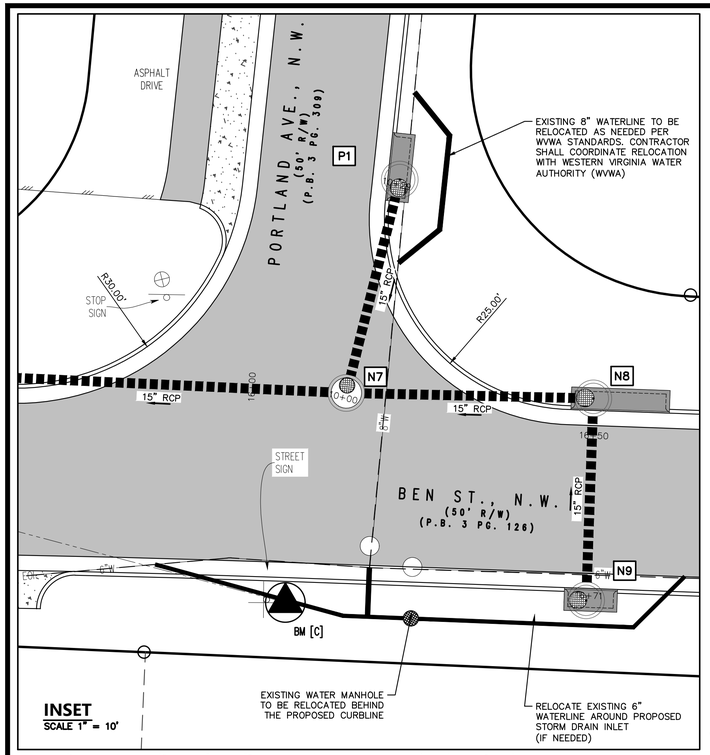

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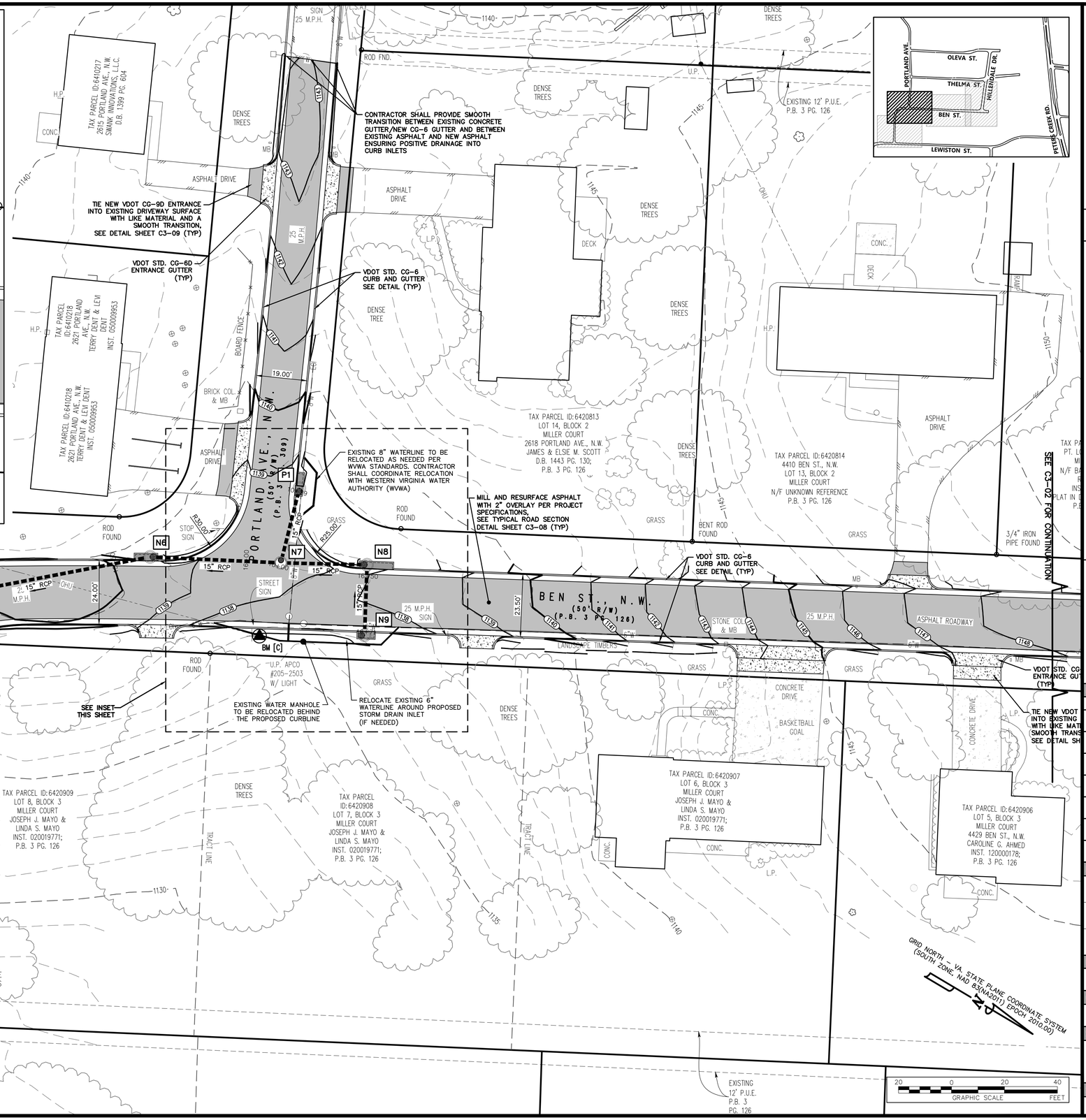

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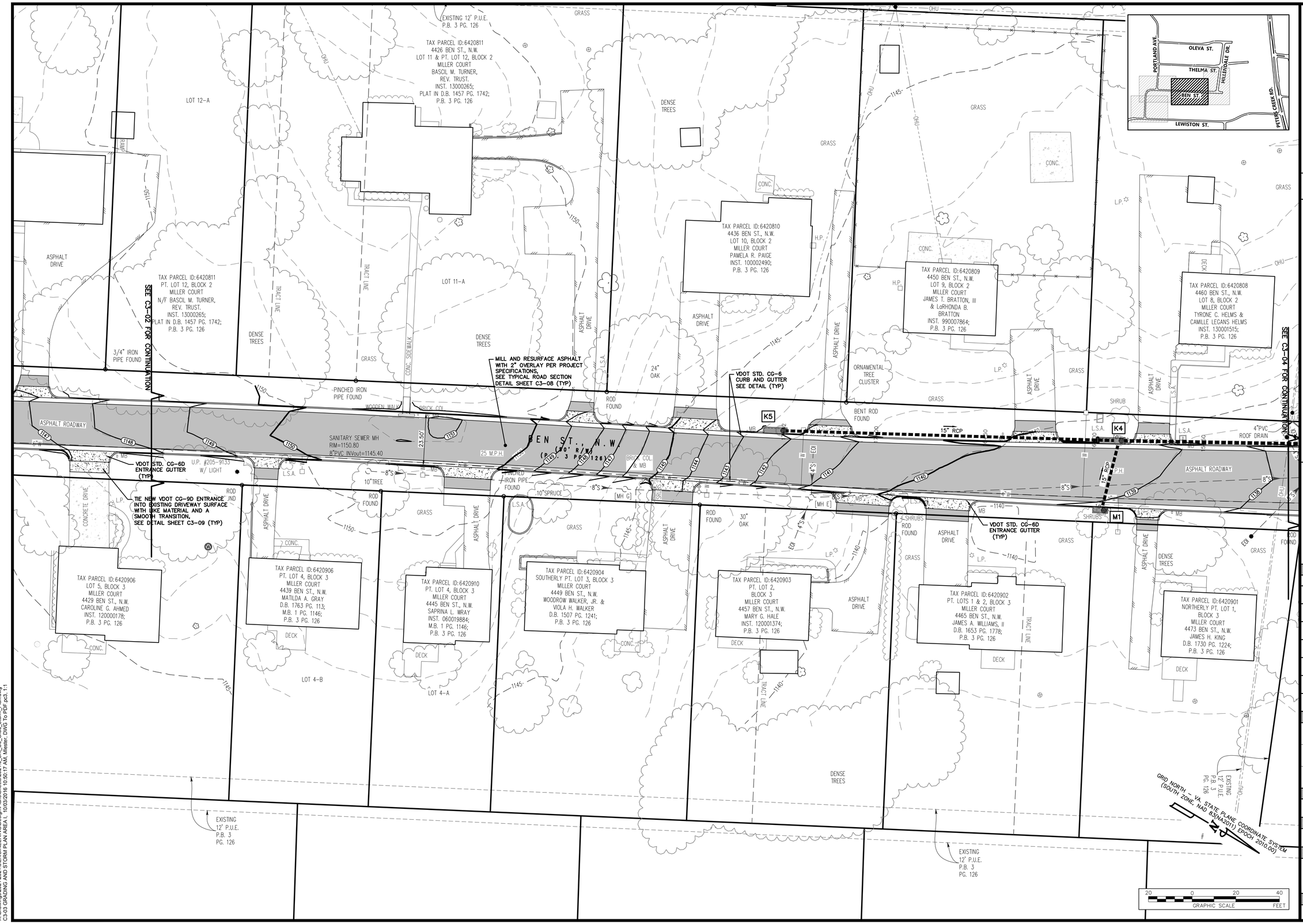
ISSUE DATE
09/20/2016

GNI JOB NO.
2521.3

SHEET TITLE
GRADING AND STORM PLAN AREA H

SHEET NUMBER
C3-02



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DESIGN	SEC, MBL

ISSUE DATE
09/20/2016

GNI JOB NO.
2521.3

SHEET TITLE
GRADING AND STORM PLAN AREA I

SHEET NUMBER
C3-03

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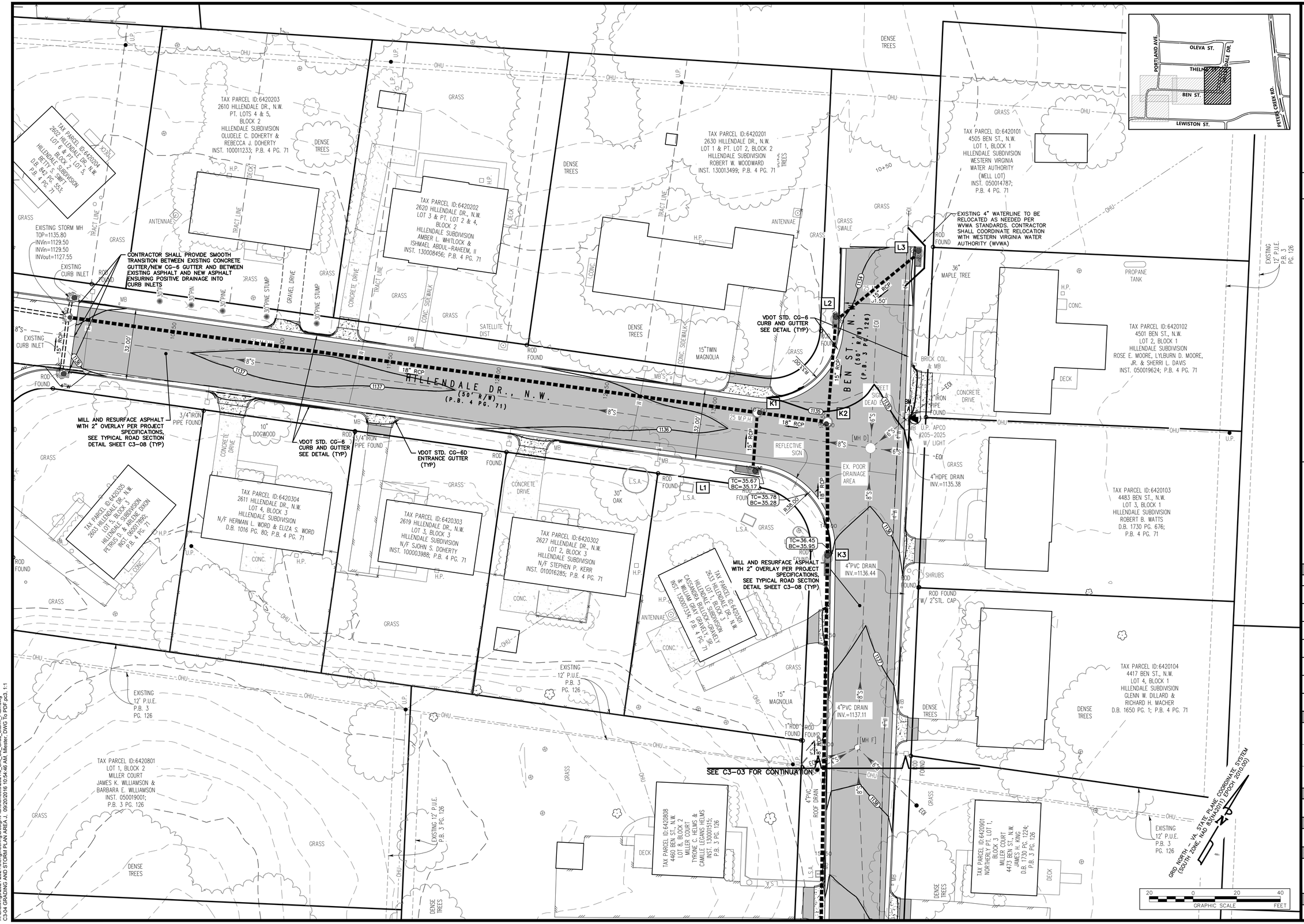

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DESIGN	SEC, MBL

ISSUE DATE
09/20/2016

GNI JOB NO.
2521.3

SHEET TITLE
GRADING AND STORM PLAN AREA J

SHEET NUMBER
C3-04

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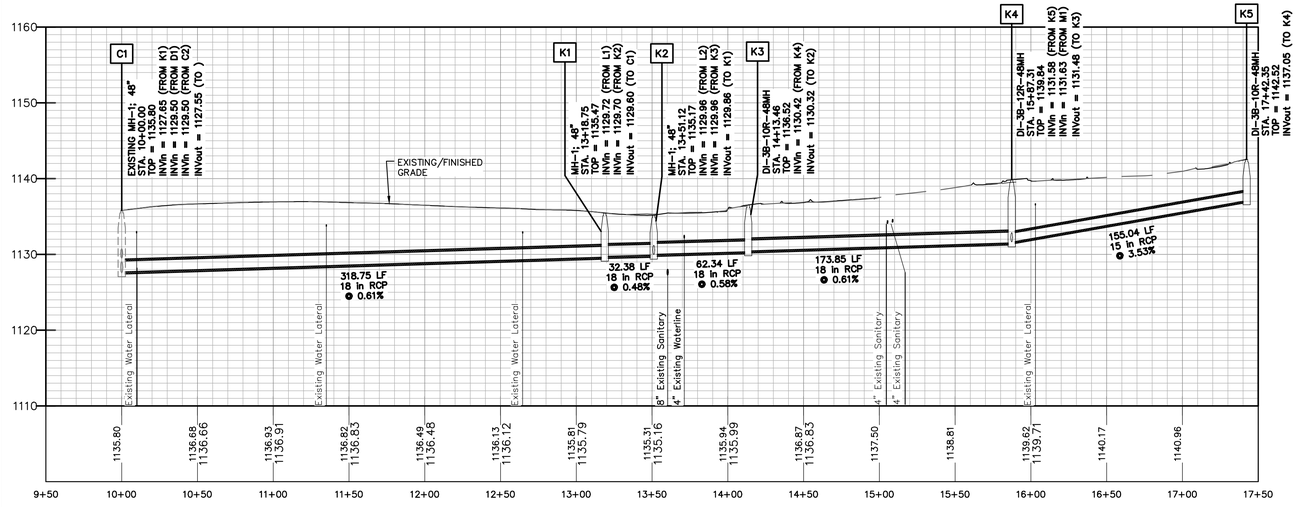

PROFILE – LINE K

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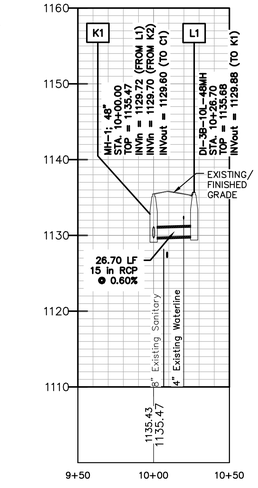

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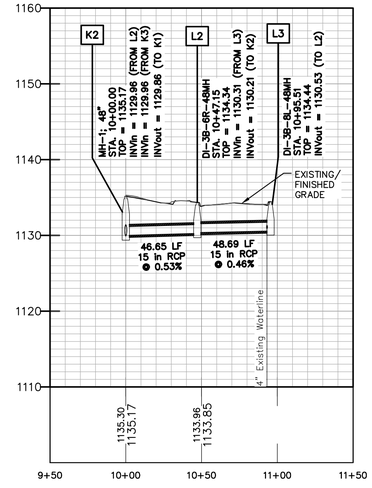

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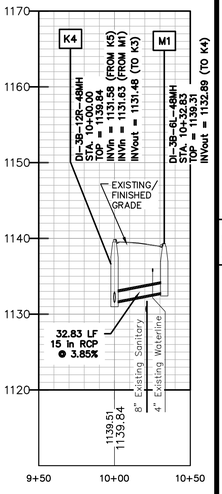

PROFILE – LINE M

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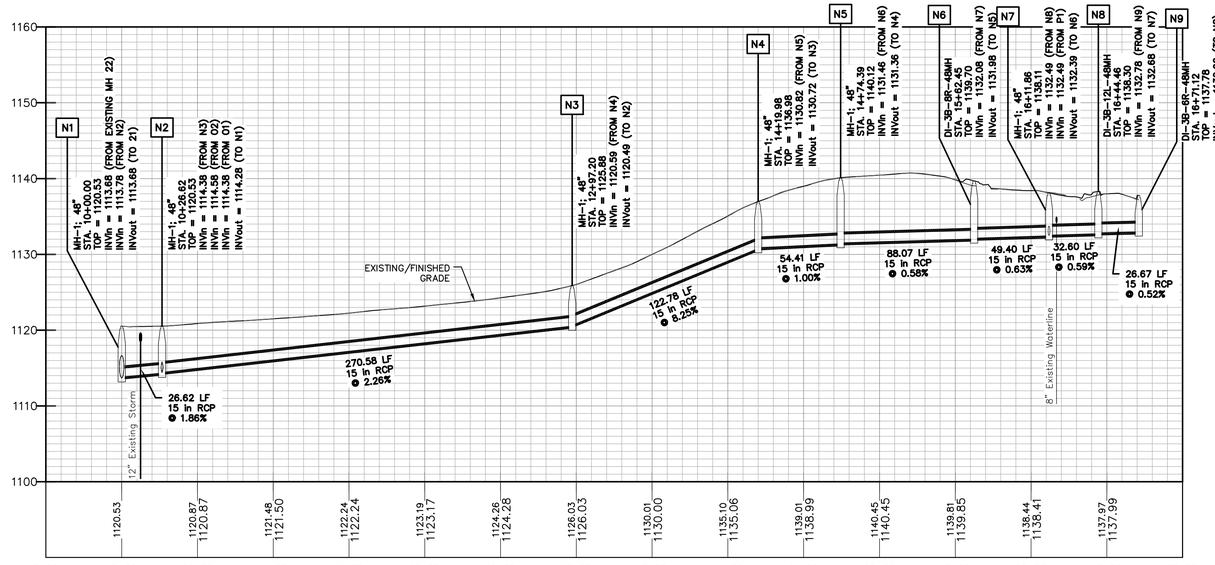

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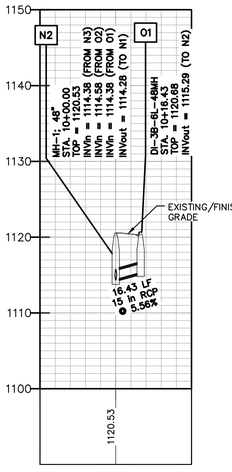

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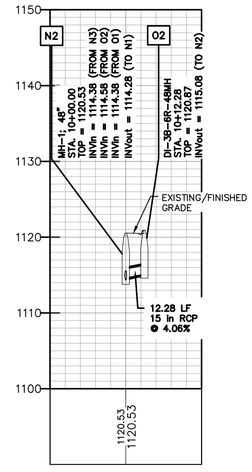

PROFILE – LINE 02

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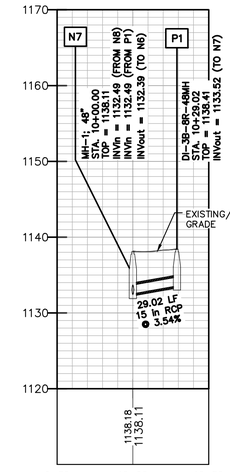

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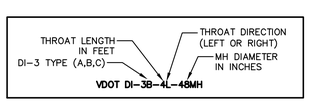

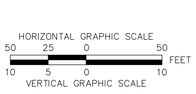

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NO.	COMMENTS	DATE

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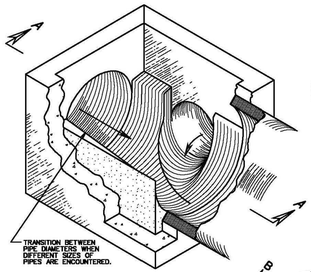
ISSUE DATE: 09/20/2016

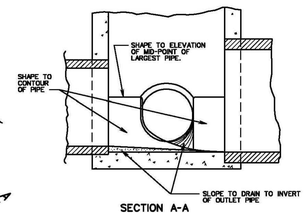
GNI JOB NO.: 2521.3

SHEET TITLE: STORM PROFILES

SHEET NUMBER: C3-05

IS-1





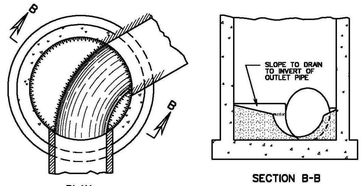
SECTION A-A

METHOD OF TREATMENT IN DROP INLETS

NOTES:
SHAPING OF MANHOLE AND INLET INVERTS IN ACCORDANCE WITH THIS DRAWING IS TO APPLY TO THOSE STRUCTURES SPECIFIED ON PLANS OR WHERE INVERT OF PIPE IS ABOVE INVERT OF STRUCTURE.

MANHOLE OR DROP INLET IS TO BE FORMED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE STANDARD OR SPECIAL DRAWING. THE INVERT SHAPING AS DETAILED HEREON IS TO CONSIST OF A PORTLAND CEMENT CONCRETE MIX CONFORMING TO CLASS A3 OR CLASS C1 EXCEPT THAT 25% OF COARSE AGGREGATE MAY BE UP TO 4" IN DIAMETER AND CONSIST OF STONE, BROKEN BRICK, BROKEN CONCRETE OR BROKEN CONCRETE BLOCK. THE SURFACE SHALL BE LEFT SMOOTH BY MEANS OF HAND TROWELLING. NONE OF THE COARSE AGGREGATE SHALL REMAIN EXPOSED.

DETAILS OF INVERT SHAPING AS SHOWN HEREON ARE FOR EXAMPLE PURPOSES ONLY. EACH MANHOLE OR DROP INLET IS TO BE SHAPED INDIVIDUALLY TO BEST FIT THE PARTICULAR INLET AND OUTLET CONFIGURATION AND FLOW LINES.



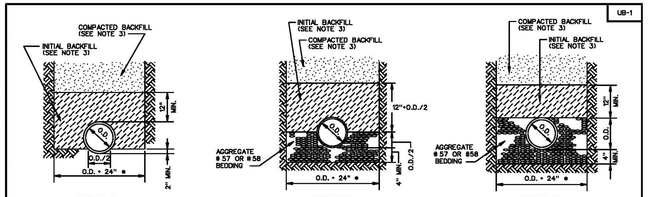
PLAN

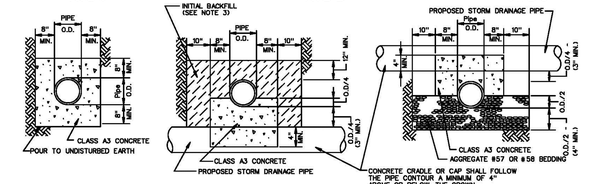
SECTION B-B

METHOD OF TREATMENT IN MANHOLES

VDOT ROAD AND BRIDGE STANDARDS		STANDARD METHOD OF SHAPING MANHOLE & INLET INVERTS VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 1 OF 1	REVISION DATE		302
108.08			

UB-1

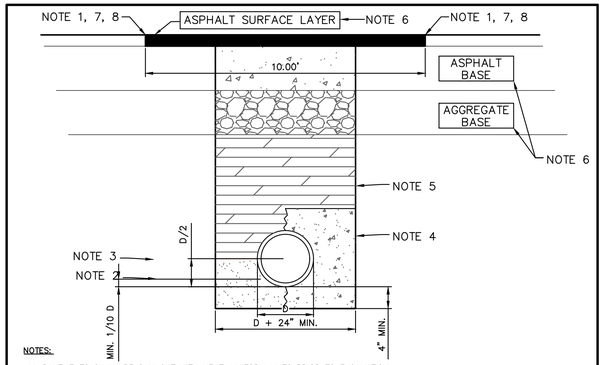




NOTES:

1. WHERE THE TRENCH BOTTOM IS IN ROCK IT SHALL BE EXCAVATED TO A MINIMUM OF 8" BELOW THE BOTTOM OF THE PIPE BACKFILLED WITH BEDDING MATERIAL.
2. WHERE PIPE FOUNDATIONS ARE YIELDING, PIPE SHALL BE BEDDED ON A MINIMUM OF 8" BEDDING MATERIAL.
3. INITIAL AND COMPACTED BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 520.03 OF THE VDOT SPECIFICATIONS. CRUSHED GLASS CONFORMING TO THE SIZE REQUIREMENTS FOR CRUSHER RUN AGGREGATE SIZE 23 OR 26 AND MEETING THE REQUIREMENTS OF SECTION 520.03 OF THE VDOT SPECIFICATION MAY BE USED AS BACKFILL MATERIAL.
* FOR PIPE LESS THAN 12" THE TRENCH WIDTH MAY BE 36" MAXIMUM.

UTILITY BEDDING AND PROTECTION WATER AND SANITARY SEWER FACILITIES VIRGINIA DEPARTMENT OF TRANSPORTATION	REV. 8/07	1401.01

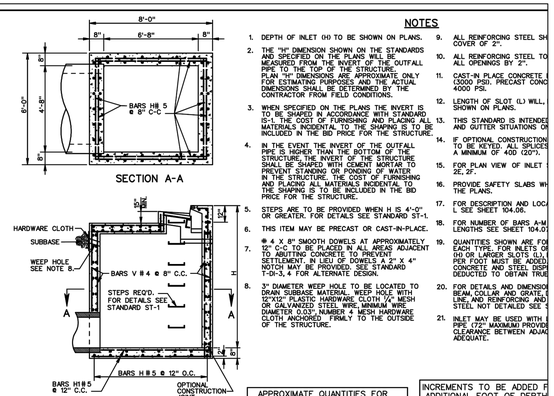


NOTES:

1. ALL PAVEMENTS SHALL BE SAW CUT WITH NEAT, UNIFORM LINES PRIOR TO EXCAVATION.
2. PIPE BEDDING MATERIAL SHALL BE CRUSHER RUN (VDOT NO. 25 OR 26) OR OPEN GRADED AGGREGATE (VDOT NO. 57, 68, 7, OR 8). ALTERNATE MATERIAL MUST BE APPROVED BY THE CITY ENGINEER.
3. MAXIMUM DEPTH OF PIPE BEDDING MATERIAL IF USING OPEN GRADED AGGREGATE FOR BEDDING.
4. OPTIONAL CONCRETE ENCASEMENT FOR POWER OR COMMUNICATION CONDUIT. PROVIDE A MINIMUM OF 4" CONCRETE COVER FROM ALL SIDES OF CONDUIT.
5. BACKFILL MATERIAL SHALL BE VDOT NO. 21A AGGREGATE, PLACED IN LOOSE LIFTS NOT EXCEEDING 6", AND COMPACTED TO AT LEAST 95% MAXIMUM DRY DENSITY WITHIN 2 PERCENTAGE POINTS OF OPTIMUM MOISTURE (VTM-1) WITH THE USE OF MECHANICAL TAMPERS OR VIBRATORY ROLLERS. WATER COMPACTION IS NOT PERMITTED. TYPE I SELECT MATERIAL MAY BE USED AS BACKFILL UPON PRIOR APPROVAL BY THE CITY ENGINEER. MATERIAL CLASSIFICATION SHALL BE PERFORMED ON THE ACTUAL SOIL TO VERIFY THAT SOIL MEETS VDOT SPECIFICATIONS FOR TYPE I SELECT MATERIAL BY A QUALIFIED TESTING LABORATORY AND TEST RESULTS SHALL BE CERTIFIED BY A VIRGINIA REGISTERED PROFESSIONAL ENGINEER. DENSITY REQUIREMENTS ARE THE SAME AS ABOVE, HOWEVER, MOISTURE CONTENT FOR SOILS MAY WITH WITHIN 20% OF OPTIMUM.

   ALL TESTING SHALL BE PERFORMED AND CERTIFIED BY A GEOTECHNICAL ENGINEER OR A VDOT-CERTIFIED TECHNICIAN. RESULTS SHALL BE PROVIDED TO THE INSPECTOR WITHIN 24 HOURS OF TESTING COMPLETION. THE COST OF ALL TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. FIELD DENSITY TESTING METHODS SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO PERFORMING ANY TESTING.
6. ALL ASPHALT PAVEMENT DEPTHS SHALL BE DETERMINED BY THE PRESENCE OF LANE STRIPING ON THE STREET. FOR STREETS WITH LANE STRIPING, THE MINIMUM DEPTH SHALL BE 8" AND CONSIST OF TWO 3" LIFTS OF ASPHALT BASE MIX AND ONE 2" LIFT OF ASPHALT SURFACE MIX. FOR STREETS WITHOUT LANE STRIPING, THE MINIMUM DEPTH SHALL BE 4 INCHES AND CONSIST OF ONE 2-1/2" LIFT OF ASPHALT BASE MIX AND ONE 1-1/2" LIFT OF ASPHALT SURFACE MIX. THE ASPHALT SURFACE LAYER SHALL EXTEND OVER UNDISTURBED BASE A MINIMUM OF 12" ON ALL SIDES. ALL PAVEMENT MATERIALS SHALL MEET VDOT REQUIREMENTS FOR SURFACE MIX (SM-9.5AL, SM-9.5A, OR SM-12.5D), BASE MIX (BM-25), AND STONE AGGREGATE (21A OR 21B). PLANT CERTIFICATION FOR EACH MIX INCORPORATED INTO THE WORK SHALL BE PROVIDED TO THE INSPECTOR. WHEN MATCHING NON-STANDARD MATERIALS, THE INSPECTOR SHALL DETERMINE AN ACCEPTABLE MATERIAL.
7. THE REPAIR SHALL BE RECTANGULAR AND SAW CUT IN STRAIGHT, UNIFORM LINES THAT ARE ALIGNED WITH THE STREET CENTERLINE. WHEN EDGES OF PAVEMENT HAVE BEEN UNDERMINED, PAVEMENT SHALL BE REMOVED TO A NEAT LINE 12" BEYOND THE UNDERMINED AREA. ANY INITIAL PAVEMENT REPAIR WITH AN AREA GREATER THAN 40 SQUARE FEET MAY BE NON-RECTANGULAR, HOWEVER, THE REPAIR SHALL BE SAW CUT IN STRAIGHT, UNIFORM LINES. ANY OTHER DEVIATION ON PATCH SHAPE MUST BE APPROVED BY THE INSPECTOR PRIOR TO THE REPAIR BEING MADE. THE FINISHED PATCH SURFACE SHALL BE WITHIN 1/4 INCH AT ANY POINT ACROSS THE PATCH AS IT RELATES TO THE SURROUNDING STREET SURFACE.
8. A FULL COVERAGE TACK COAT IS REQUIRED ON ALL SURFACES THAT WILL CONTACT THE NEW SURFACE LAYER.

OFFICE OF THE CITY ENGINEER – ROANOKE, VIRGINIA		
APPROVED CITY ENGINEER DATE:	UTILITY TRENCH REPAIR IN PAVEMENT USING VDOT NO. 21A AGGREGATE	UTR-1



SECTION THROUGH ELEVATION

SCHEDULE OF REINFORCING STEEL

BARS MARK	NO. REQUIRED	LENGTH
H	4(1.5H+1)+16	5'-8"
H1	4(1.5H+1)+12	7'-8"
V	76	H-1'-2"

NOTES

1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS.
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD MANHOLE & INLET INVERTS. SHAPING OF CONCRETE MATERIALS ESSENTIAL TO SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
7. # 4 X 8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT. IN LIEU OF DOWELS A 2" X 4" NOTCH MAY BE PROVIDED. SEE STANDARD T-09-3, # FOR ALTERNATE DESIGN.
8. 3" DIAMETER WEEP HOLE TO BE LOCATED TO DRAIN SUBBASE MATERIAL. WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH ¼" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.03", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
9. ALL REINFORCING STEEL SH COVER OF 2".
10. ALL REINFORCING STEEL TO ALL OPENINGS BY 2".
11. CAST-IN PLACE CONCRETE (3000 PSI). PRECAST CONC 4000 PSI.
12. LENGTH OF SLOT (L) WILL, SHOWN ON PLANS.
13. THIS STANDARD IS INTENDE AND GUTTER SITUATIONS O
14. IF OPTIONAL CONSTRUCTION TO BE KEYED ALL SPLICES A MINIMUM OF 40D (20").
15. FOR PLAN VIEW OF INLET 2E, 2F.
16. PROVIDE SAFETY SLABS WH
17. FOR DESCRIPTION AND LOC SEE SHEET 104.06.
18. FOR NUMBER OF BARS A-M LENGTHS SEE SHEET 104.0
19. QUANTITIES SHOWN ARE FO EACH TYPE. FOR INLETS O (H) OR LARGER SLOTS (L), PER FOOT MUST BE ADDED CONCRETE AND STEEL DISP DEDUCTED TO OBTAIN TRUE
20. FOR DETAILS AND DIMENSIO BEAM, COLLAR AND GRATE LINE, AND REINFORCING AND STEEL NOT DETAILED SEE
21. INLET MAY BE USED WITH PIPE (72" MAXIMUM) PROVIDE CLEARANCE BETWEEN ADJAC ADEQUATE.

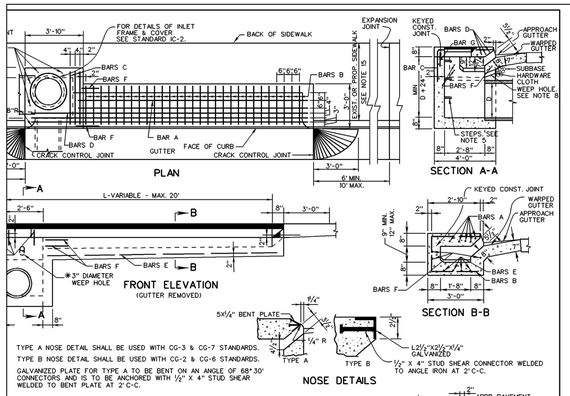
APPROXIMATE QUANTITIES FOR MINIMUM 9' DEPTH INLET

DI-TYPE	DIMENSION L SEE NOTE 17	REINFORCING STEEL	CONCRETE
	Lin. Ft.	Lbs.	Cu. Yds.
2DD	4'-8"	1,683	6.93
2EE	6'-0"	1,714	7.20
2FF	6'-0"	1,733	7.25

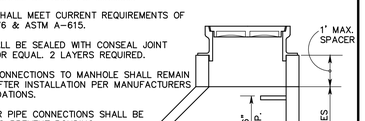
INCREMENTS TO BE ADDED F ADDITIONAL FOOT OF DEPTH OR SLOT LENGTH (L

DI-TYPE	H CONCRETE Cu. Yds.	H STEEL Lbs.	CONCRETE Cu. Yds.
2DD	0.63	191	——
2EE	0.63	191	0.16
2FF	0.63	191	0.16

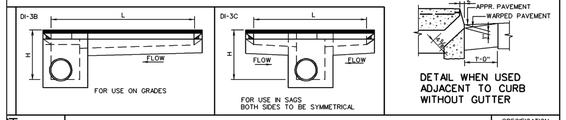
SPECIFICATION REFERENCE	STANDARD CURB DROP INLET 30" - 48" PIPE: DEPTH (H) = 9' TO 20' VIRGINIA DEPARTMENT OF TRANSPORTATION	ROAD AND S REVISION DATE
233 302		



TYPE A NOSE DETAIL SHALL BE USED WITH CG-3 & CG-7 STANDARDS.
TYPE B NOSE DETAIL SHALL BE USED WITH CG-2 & CG-6 STANDARDS.
GALVANIZED PLATE FOR TYPE A TO BE BENT ON AN ANGLE OF 68°-30' CONNECTORS AND IS TO BE ANCHORED WITH ½" X 4" STUD SHEAR WELDED TO BENT PLATE AT 2'-C-C.



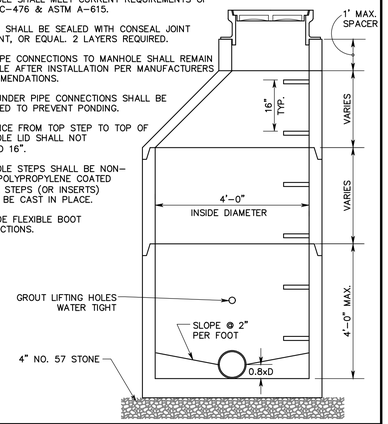
NOSE DETAILS



T STANDARDS REVISION DATE 08/10	STANDARD CURB DROP INLET 12" - 30" PIPE: MAXIMUM DEPTH (H) = 8' VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE 233 302

NOTES:

1. CONCRETE SHALL BE 4000 PSI MINIMUM.
2. MANHOLE SHALL MEET CURRENT REQUIREMENTS OF ASTM C-476 & ASTM A-615.
3. JOINTS SHALL BE SEALED WITH CONSEAL JOINT SEALANT, OR EQUAL. 2 LAYERS REQUIRED.
4. ALL PIPE CONNECTIONS TO MANHOLE SHALL REMAIN FLEXIBLE AFTER INSTALLATION PER MANUFACTURERS RECOMMENDATIONS.
5. VOID UNDER PIPE CONNECTIONS SHALL BE GROUTED TO PREVENT PONDING.
6. DISTANCE FROM TOP STEP TO TOP OF MANHOLE LID SHALL NOT EXCEED 16".
7. MANHOLE STEPS SHALL BE NON-SLIP, POLYPROPYLENE COATED STEEL, STEPS (OR INSERTS) SHALL BE CAST IN PLACE.
8. PROVIDE FLEXIBLE BOOT CONNECTIONS.



NO SCALE — TYPICAL PRECAST MANHOLE — GNI-2108

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PORTLAND AVENUE, BEN STREET AND HILLENDALE DRIVE IMPROVEMENTS

CITY OF ROANOKE, VIRGINIA

COMMONWEALTH OF VIRGINIA
JOHN T. NEEL
Lic. No. 035780
09/20/2016
PROFESSIONAL ENGINEER

REVISIONS		
NO.	COMMENTS	DATE

PROJECT TEAM	
PIC	JOHN T. NEEL, PE
PM	MATTHEW P. TOMLINSON, PE
DESIGN	SEC, MBL

ISSUE DATE: 09/20/2016

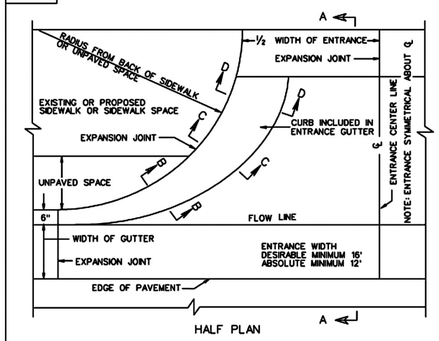
GNI JOB NO.: 2521.3

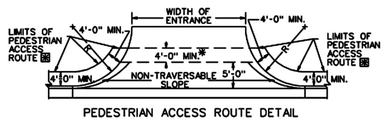
SHEET TITLE: STORM DETAILS

SHEET NUMBER: C3-06

X:\Drawings\2521\2521.3engineering\Design\Plans\Sheets\2521.3_Sht_C3_Storm_Details.dwg
C3-06 STORM DETAILS, 09/20/2016 4:39:50 PM, Meister, DWG To PDF.pc3, 1:1

CG-9D

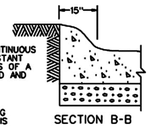




PEDESTRIAN ACCESS ROUTE DETAIL

ADDITIONAL RIGHT-OF-WAY IS REQUIRED IF THE LIMITS OF PEDESTRIAN ACCESS ROUTE ▩ EXTEND BEYOND EXISTING OR PROPOSED VDOT RIGHT-OF WAY.

DETAIL TO BE USED WHEN THE COMBINED WIDTH OF UNPAVED SPACE AND SIDEWALK SPACE IS LESS THAN 7'.

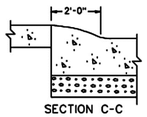


SECTION B-B

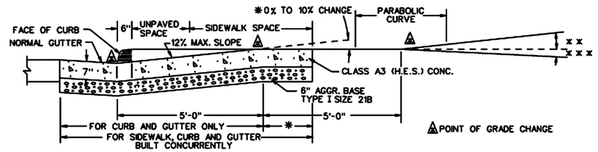
▩ PEDESTRIAN ACCESS ROUTES PROVIDE A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PEDESTRIANS.

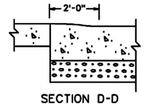
* IF PEDESTRIAN ACCESS ROUTES ▩ ARE BEING PROVIDED, A MINIMUM 4' TRAVERSABLE WIDTH IS REQUIRED WITH A MAX. 2% CROSS SLOPE.

WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB CONFIGURATION.



SECTION C-C





SECTION D-D

▲ POINT OF GRADE CHANGE

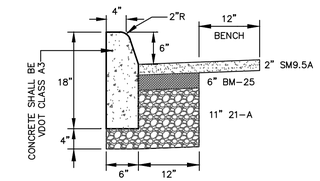
x x 12 % MAXIMUM INCREASE IN SLOPE AT MINIMUM 10' INTERVALS
x x x 3 % MAXIMUM DECREASE IN SLOPE FOR FIRST 10' INTERVAL AND
8 % MAXIMUM DECREASE FOR SUCCEEDING MINIMUM 10' INTERVALS

STANDARD ENTRANCE GUTTER

VIRGINIA DEPARTMENT OF TRANSPORTATION

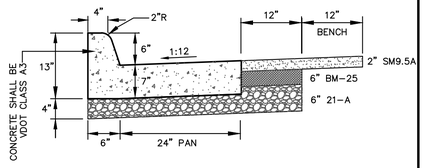
REV. 2/06
203.03

SPECIFICATION REFERENCE: 502



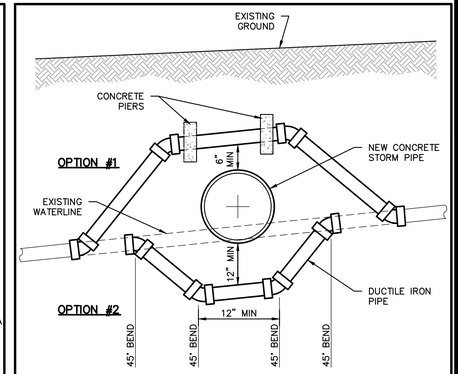
STANDARD 6" CURB

WITH ASPHALT RESTORATION (CG-2) NTS



STANDARD 6" CURB AND GUTTER

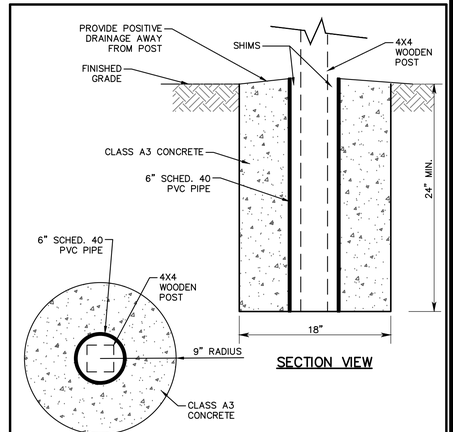
WITH ASPHALT RESTORATION (CG-6) NTS



NOTES:

1. WATERLINE RELOCATION TO UTILIZE OPTION #1 AS LONG AS A MINIMUM COVER OF 2 FEET CAN BE PROVIDED OVER THE WATERLINE. IF CONDITIONS IN FIELD DO NOT ALLOW THIS TO OCCUR, OPTION #2 MAY BE UTILIZED. COORDINATE ALL WORK WITH THE WESTERN VIRGINIA WATER AUTHORITY.
2. JOINTS TO BE RESTRAINED WITH RETAINER GLANDS.

WATERLINE RELOCATION PROFILE



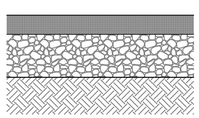
SECTION VIEW

PLAN VIEW

NO SCALE GNI-7102

SIGN POST BASE DETAIL

STANDARD PAVEMENT



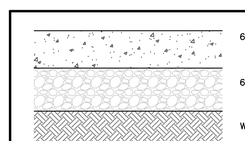
2" V.D.O.T. SM-9.5A ASPHALT SURFACE COURSE

6" V.D.O.T. 25 AGGREGATE BASE

WELL-COMPACTED SUBGRADE

NO SCALE GNI-4006

DRIVEWAY PAVEMENT PATCH SECTION



6" 4000 PSI 5% AIR ENTRAINED CONCRETE REINFORCED WITH 35 LBS/CY OF TYPE II STEEL FIBERS

6" COMPACTED VDOT TYPE 21A AGGREGATE

WELL-COMPACTED SUBGRADE

NOTE:
PLACE CONTRACTION JOINTS AT 15' O.C.

NO SCALE GNI-4013

DRIVEWAY CONCRETE PATCH SECTION

DISPLACEMENT QUANTITIES FOR PIPE OPENINGS

(TO BE USED WITH ST'D JB-1 JUNCTION BOX)

PIPE SIZE	PIPE CLASS	CONCRETE 0° Cu. Yards	15° Cu. Yards	30° Cu. Yards	45° Cu. Yards
12"	III, IV, V	.035	.036	.040	.050
12"	CM	.019	.020	.022	.027
15"	III, IV, V	.050	.052	.058	.071
15"	CM	.030	.031	.034	.042
18"	III, IV, V	.069	.072	.080	.099
18"	CM	.043	.044	.049	.061
24"	III, IV, V	.118	.122	.137	.168
24"	CM	.076	.078	.087	.108
30"	III, IV, V	.179	.186	.208	.256
30"	CM	.118	.122	.137	.168
36"	III, IV, V	.254	.263	.294	.362
36"	CM	.170	.176	.197	.242
42"	III, IV, V	.341	.353	.395	.486
42"	CM	.231	.240	.268	.330
48"	III, IV, V	.441	.457	.511	.629
48"	CM	.302	.313	.350	.431
54"	III, IV	.554	.574	.642	.789
54"	V	.580	.600	.672	.826
54"	CM	.382	.396	.443	.545
60"	III, IV	.679	.704	.787	.965
60"	V	.708	.734	.821	1.009
60"	CM	.472	.481	.551	.673
66"	III, IV	.818	.847	.948	1.166
66"	V	.849	.880	.985	1.211
66"	CM	.571	.591	.662	.814
72"	III, IV	.969	1.004	1.123	1.382
72"	V	1.003	1.040	1.163	1.431
72"	CM	.679	.704	.787	.969

SPECIFICATION REFERENCE: 105, 233, 302

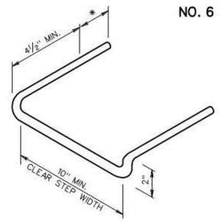
JUNCTION BOX DISPLACEMENT QUANTITIES FOR 48" - 72" PIPE CULVERTS

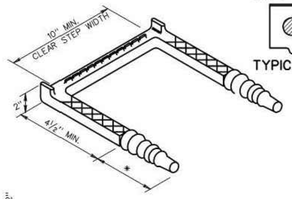
VIRGINIA DEPARTMENT OF TRANSPORTATION

ROAD AND
REVISION DA

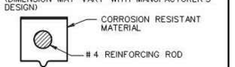
ST-1

NO. 6 GALVANIZED STEEL STEP

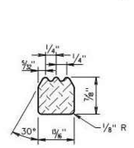




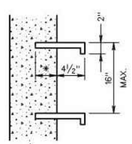
#4, GRADE 60, REINFORCING ROD ENCASED IN A CORROSION RESISTANT RUBBER OR OTHER MATERIAL APPROVED BY THE ENGINEER. (DIMENSION MAY VARY WITH MANUFACTURER'S DESIGN)



TYPICAL SECTION



TYPICAL SECTION
(DIMENSIONS MAY VARY WITH MANUFACTURER'S DESIGN)



NOTES:
STEPS WILL BE REQUIRED IN ALL STRUCTURES WITH A DEPTH OF 4'-0" OR GREATER UNLESS OTHERWISE NOTED ON THE PLANS.

ALL STEPS SHALL PROTRUDE 4½" FROM INSIDE FACE OF STRUCTURE WALL.

MAXIMUM STEP SPACING TO BE 16" C-C.

STEPS SHALL WITHSTAND A MINIMUM FORCE OF 300 POUNDS WHEN EXTENDED 4½" FROM THE FACE OF THE SUPPORT.

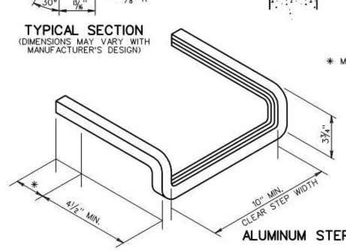
STEPS ARE TO BE VERTICALLY ALIGNED AND UNIFORMALY SPACED FOR THE ENTIRE DEPTH OF ANY STRUCTURE.

IN PRECAST UNITS STEPS MAY BE CAST IN PLACE, MORTARED INTO HOLES PROVIDED BY THE FABRICATOR, OR DRIVEN.

STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THEY MEET THE MINIMUM REQUIREMENTS SHOWN HEREON AND THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS AND CERTIFIED TEST REPORTS OF THE PROPOSED SUBSTITUTE AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.

ALL STEPS INSTALLED SHALL BE PROVIDED WITH SLIP-RESISTANT SURFACES SUCH AS BUT NOT LIMITED TO, CORRUGATED KNURLED, OR DIMPLED SURFACES.

ALUMINUM STEPS SHALL BE FABRICATED IN ACCORDANCE WITH ASTM B221, ALLOY 6005-T5. THAT PORTION OF THE STEP ENCASED IN MASONRY SHALL BE UNIFORMLY COATED WITH A BITUMINOUS, SOLVENT TYPE, ASBESTOS FILLED ALUMINUM PIGMENTED COATING CONFORMING TO FEDERAL SPECIFICATION TC-C-00498A.



ALUMINUM STEP

* MINIMUM OF 3" EMBEDMENT

SPECIFICATION REFERENCE

STANDARD STEP

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT
ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 1
106.09

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PORTLAND AVENUE, BEN STREET AND HILLENDALE DRIVE IMPROVEMENTS

CITY OF ROANOKE, VIRGINIA

COMMONWEALTH OF VIRGINIA
JOHN T. NEEL
Lic. No. 035780
09/20/2016
PROFESSIONAL ENGINEER

REVISIONS		
NO.	COMMENTS	DATE

PROJECT TEAM	
PIC	JOHN T. NEEL, PE
PM	MATTHEW P. TOMLINSON, PE
DESIGN	SEC, MBL

ISSUE DATE: 09/20/2016

GNI JOB NO.: 2521.3

SHEET TITLE: SITE DETAILS

SHEET NUMBER: C3-07

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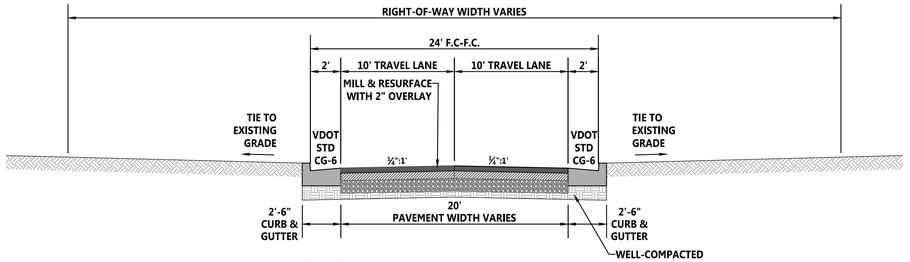
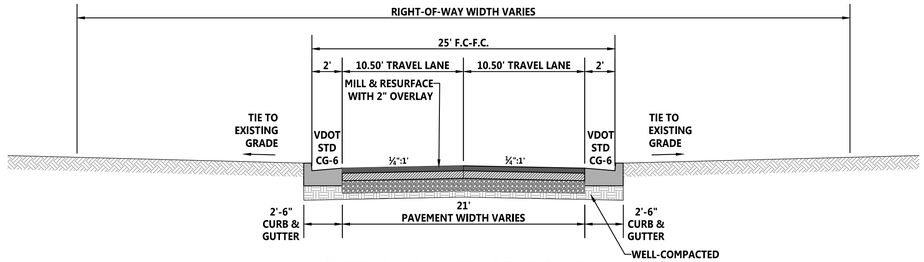
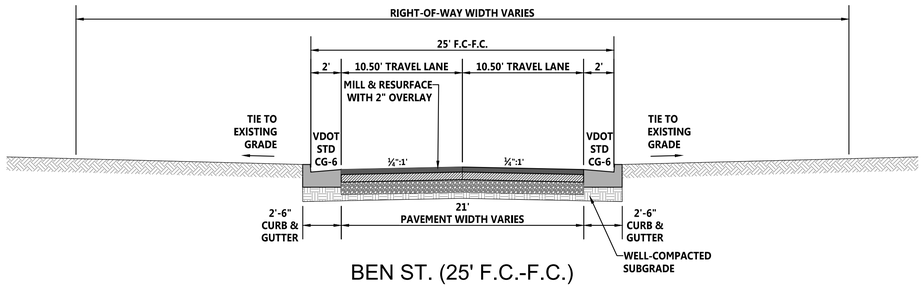
C3-07 SITE DETAILS, 09/20/2016 10:32:19 AM, Mleister, DWG To PDF.pc3, 1:1



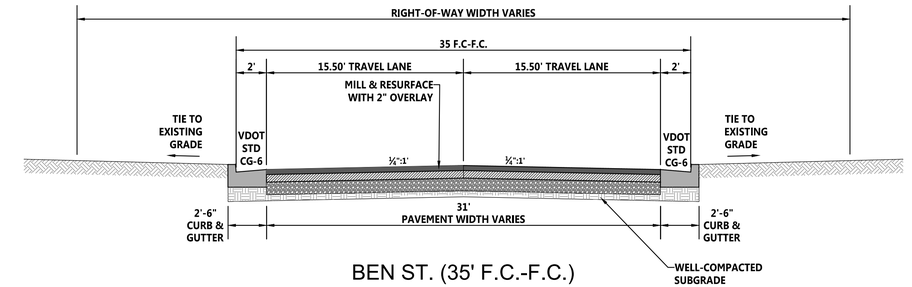
PORTLAND AVE. (24' F.C.-F.C.)
TYPICAL ROAD SECTION



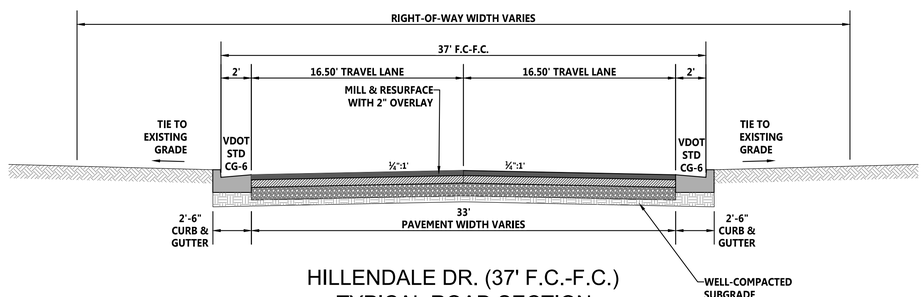
PORTLAND AVE. (25' F.C.-F.C.)
TYPICAL ROAD SECTION



BEN ST. (25' F.C.-F.C.)
TYPICAL ROAD SECTION



BEN ST. (35' F.C.-F.C.)
TYPICAL ROAD SECTION



HILLENDALE DR. (37' F.C.-F.C.)
TYPICAL ROAD SECTION

NOTE:

1. THERE ARE SEVERAL AREAS OF TRANSITION WHERE THE ROAD CHANGES FROM ONE SECTION WIDTH TO ANOTHER. CONTRACTOR SHALL CONSULT PLAN VIEW FOR GUIDANCE AND WHERE SECTIONS CHANGE.
2. MILLING AND 2" OVERLAY RESURFACING SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
3. STORM DRAIN INSTALL AREAS SHALL BE BACKFILLED IN ACCORDANCE WITH PROJECT SPECIFICATIONS (FULLROAD REBUILD).

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JOHN T. NEEL
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PROFESSIONAL ENGINEER

REVISIONS

NO.	COMMENTS	DATE

PROJECT TEAM

PIC	JOHN T. NEEL, PE
PM	MATTHEW P. TOMLINSON, PE
DESIGN	SEC, MBL

ISSUE DATE
09/20/2016

GNI JOB NO.
2521.3

SHEET TITLE
TYPICAL ROAD SECTIONS

SHEET NUMBER
C3-08

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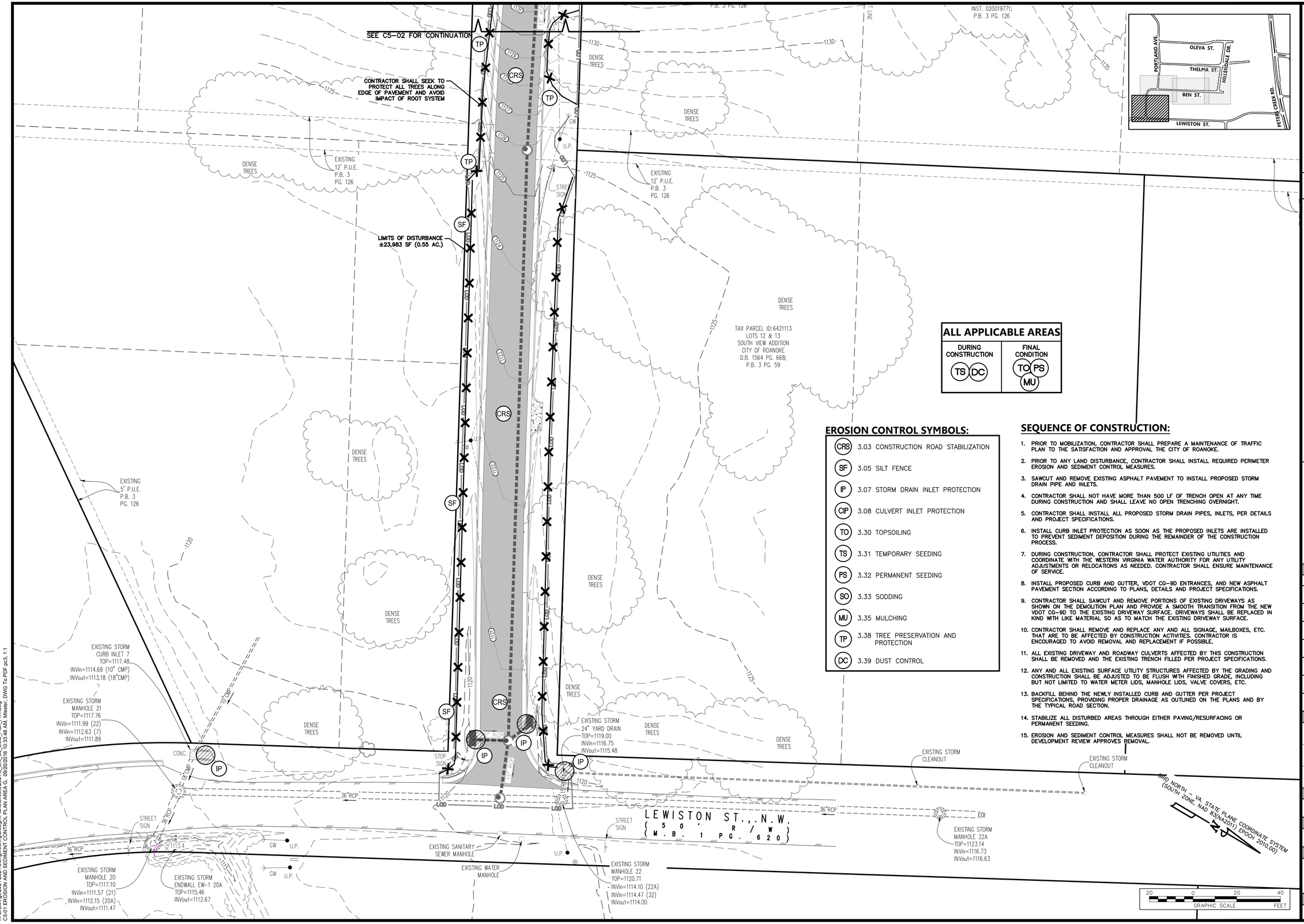
C3-08 TYPICAL ROAD SECTIONS, 10/9/2016 10:32:21 AM, Mester, DWG To PDF.pc3, 1:1



ALL APPLICABLE AREAS

DURING CONSTRUCTION	FINAL CONDITION
TS, DC	TO, PS, MU

EROSION CONTROL SYMBOLS:

- CRS 3.03 CONSTRUCTION ROAD STABILIZATION
- SF 3.05 SILT FENCE
- IP 3.07 STORM DRAIN INLET PROTECTION
- CIP 3.08 CULVERT INLET PROTECTION
- TO 3.30 TOPSOILING
- TS 3.31 TEMPORARY SEEDING
- PS 3.32 PERMANENT SEEDING
- SO 3.33 SODDING
- MU 3.35 MULCHING
- TP 3.38 TREE PRESERVATION AND PROTECTION
- DC 3.39 DUST CONTROL

SEQUENCE OF CONSTRUCTION:

1. PRIOR TO MOBILIZATION, CONTRACTOR SHALL PREPARE A MAINTENANCE OF TRAFFIC PLAN TO THE SATISFACTION AND APPROVAL THE CITY OF ROANOKE.
2. PRIOR TO ANY LAND DISTURBANCE, CONTRACTOR SHALL INSTALL REQUIRED PERIMETER EROSION AND SEDIMENT CONTROL MEASURES.
3. SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT TO INSTALL PROPOSED STORM DRAIN PIPE AND INLETS.
4. CONTRACTOR SHALL NOT HAVE MORE THAN 500 LF OF TRENCH OPEN AT ANY TIME DURING CONSTRUCTION AND SHALL LEAVE NO OPEN TRENCHING OVERNIGHT.
5. CONTRACTOR SHALL INSTALL ALL PROPOSED STORM DRAIN PIPES, INLETS, PER DETAILS AND PROJECT SPECIFICATIONS.
6. INSTALL CURB INLET PROTECTION AS SOON AS THE PROPOSED INLETS ARE INSTALLED TO PREVENT SEDIMENT DEPOSITION DURING THE REMAINDER OF THE CONSTRUCTION PROCESS.
7. DURING CONSTRUCTION, CONTRACTOR SHALL PROTECT EXISTING UTILITIES AND COORDINATE WITH THE WESTERN VIRGINIA WATER AUTHORITY FOR ANY UTILITY ADJUSTMENTS OR RELOCATIONS AS NEEDED. CONTRACTOR SHALL ENSURE MAINTENANCE OF SERVICE.
8. INSTALL PROPOSED CURB AND GUTTER, VDOT CG-9D ENTRANCES, AND NEW ASPHALT PAVEMENT SECTION ACCORDING TO PLANS, DETAILS AND PROJECT SPECIFICATIONS.
9. CONTRACTOR SHALL SAWCUT AND REMOVE PORTIONS OF EXISTING DRIVEWAYS AS SHOWN ON THE DEMOLITION PLAN AND PROVIDE A SMOOTH TRANSITION FROM THE NEW VDOT CG-9D TO THE EXISTING DRIVEWAY SURFACE. DRIVEWAYS SHALL BE REPLACED IN KIND WITH LIKE MATERIAL SO AS TO MATCH THE EXISTING DRIVEWAY SURFACE.
10. CONTRACTOR SHALL REMOVE AND REPLACE ANY AND ALL SIGNAGE, MAILBOXES, ETC. THAT ARE TO BE AFFECTED BY CONSTRUCTION ACTIVITIES. CONTRACTOR IS ENCOURAGED TO AVOID REMOVAL AND REPLACEMENT IF POSSIBLE.
11. ALL EXISTING DRIVEWAY AND ROADWAY CULVERTS AFFECTED BY THIS CONSTRUCTION SHALL BE REMOVED AND THE EXISTING TRENCH FILLED PER PROJECT SPECIFICATIONS.
12. ANY AND ALL EXISTING SURFACE UTILITY STRUCTURES AFFECTED BY THE GRADING AND CONSTRUCTION SHALL BE ADJUSTED TO BE FLUSH WITH FINISHED GRADE, INCLUDING BUT NOT LIMITED TO WATER METER LIDS, MANHOLE LIDS, VALVE COVERS, ETC.
13. BACKFILL BEHIND THE NEWLY INSTALLED CURB AND GUTTER PER PROJECT SPECIFICATIONS, PROVIDING PROPER DRAINAGE AS OUTLINED ON THE PLANS AND BY THE TYPICAL ROAD SECTION.
14. STABILIZE ALL DISTURBED AREAS THROUGH EITHER PAVING/RESURFACING OR PERMANENT SEEDING.
15. EROSION AND SEDIMENT CONTROL MEASURES SHALL NOT BE REMOVED UNTIL DEVELOPMENT REVIEW APPROVES REMOVAL.

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PORTLAND AVENUE, BEN STREET AND HILLENDALE DRIVE IMPROVEMENTS

CITY OF ROANOKE, VIRGINIA

COMMONWEALTH OF VIRGINIA
JOHN T. NEEL
Lic. No. 035780
09/20/2016
PROFESSIONAL ENGINEER

REVISIONS		
NO.	COMMENTS	DATE

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DESIGN	SEC, MBL

ISSUE DATE: 09/20/2016

GNI JOB NO.: 2521.3

SHEET TITLE: EROSION AND SEDIMENT CONTROL PLAN AREA G

SHEET NUMBER: C5-01

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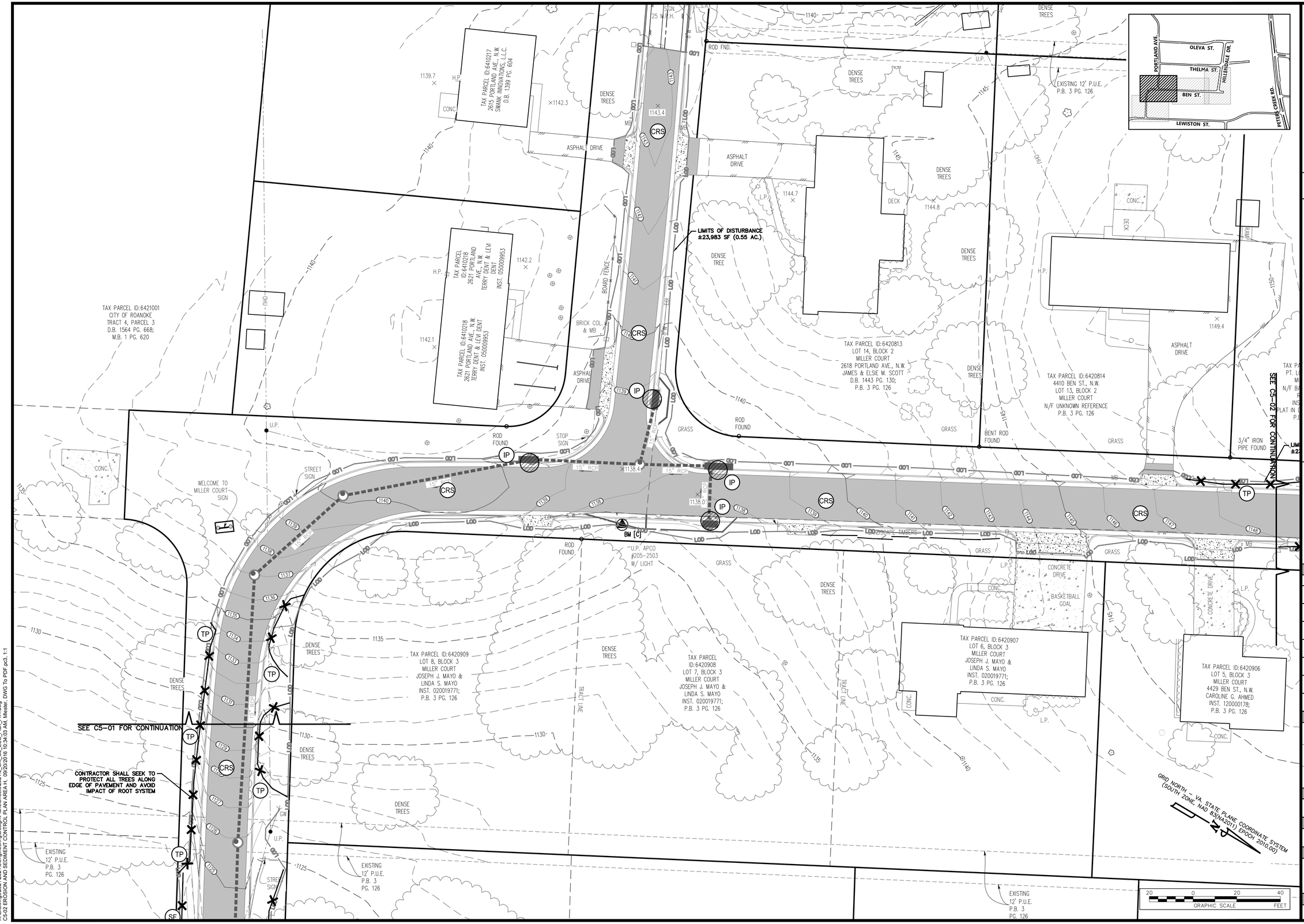

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SHEET TITLE: EROSION AND SEDIMENT CONTROL PLAN AREA H

SHEET NUMBER: C5-02

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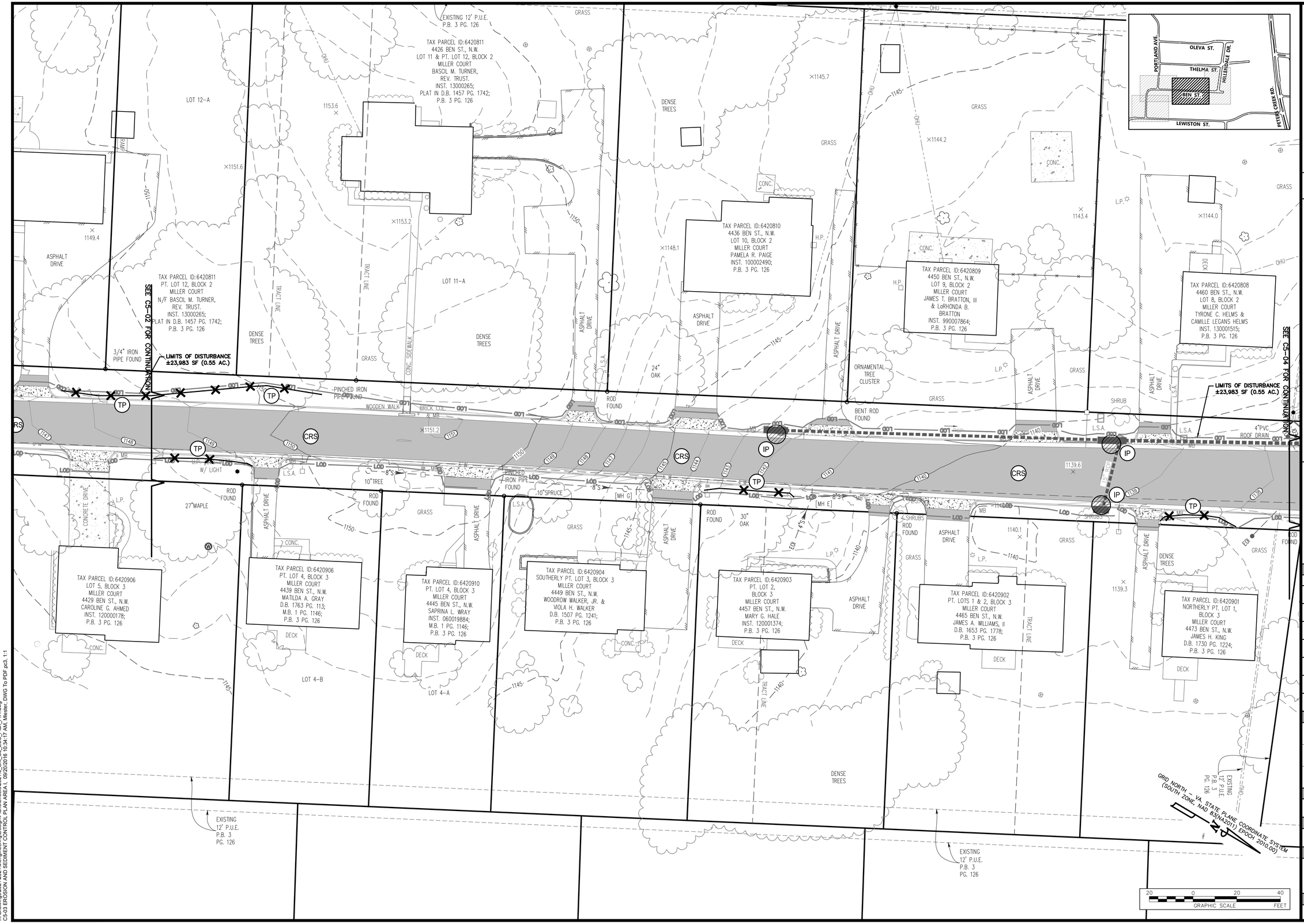

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GNI JOB NO.
2521.3

SHEET TITLE
EROSION AND SEDIMENT CONTROL PLAN AREA I

SHEET NUMBER
C5-03

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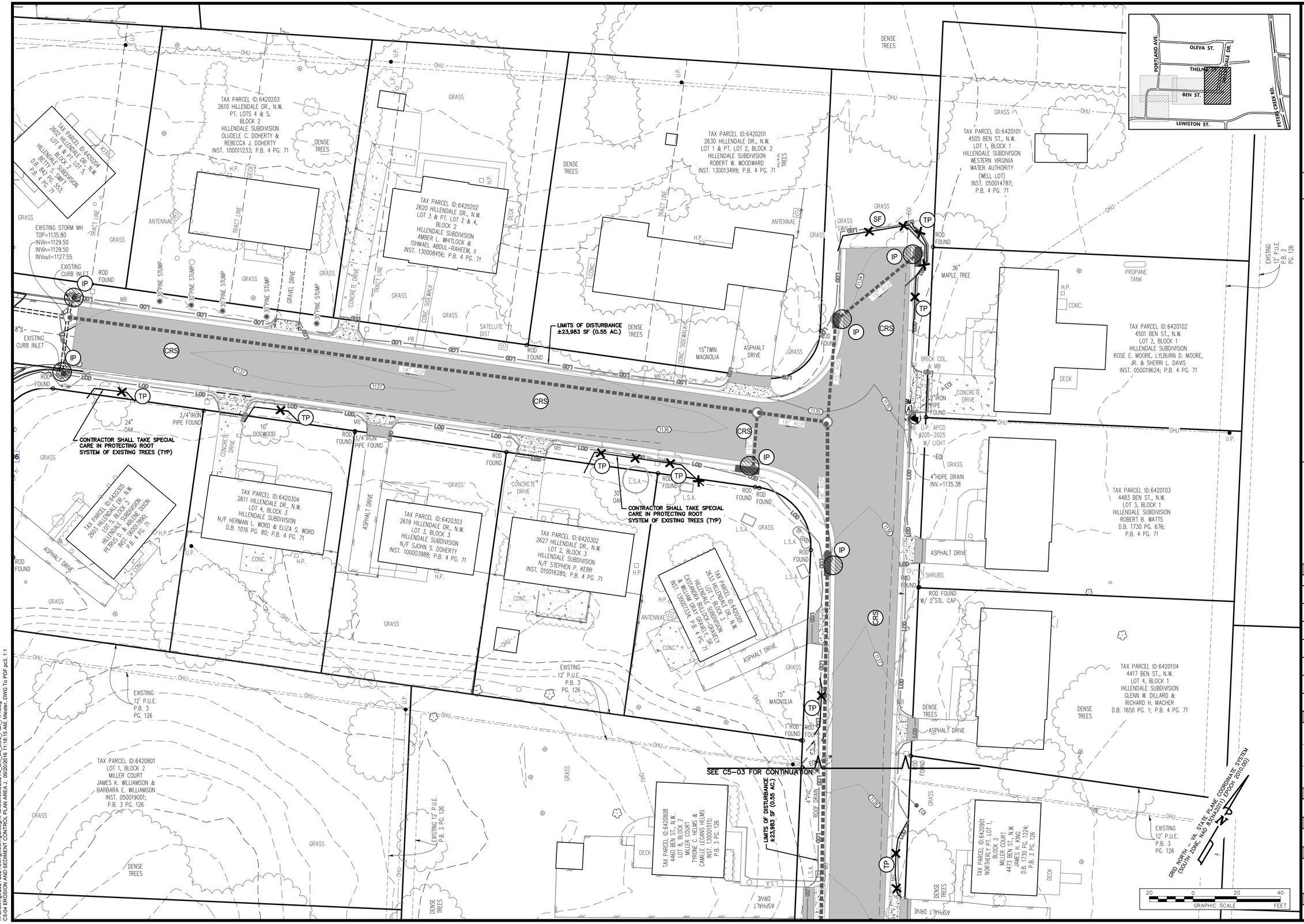

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09/20/2016

GNI JOB NO.
2521.3

SHEET TITLE
EROSION AND SEDIMENT CONTROL PLAN AREA J

SHEET NUMBER
C5-04

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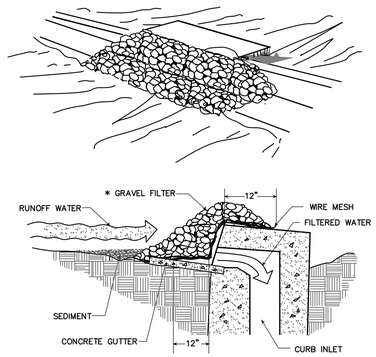


SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

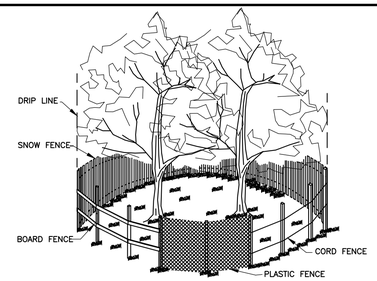
* GRAVEL SHALL BE VDOT #3, #357 OR 5 COARSE AGGREGATE.

IP

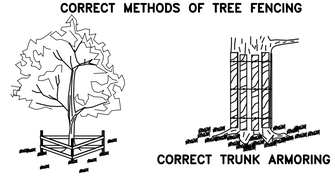
NO SCALE

GRAVEL CURB INLET SEDIMENT FILTER

SOURCE: VA. DSWC PLATE 3.07-6



CORRECT METHODS OF TREE FENCING



CORRECT TRUNK ARMORING

TRIANGULAR BOARD FENCE

TP

NO SCALE

TREE PROTECTION

Source: Va. DSCW Plate 3.38-2

TEMPORARY SEEDING MIXTURE

1 SEPTEMBER TO 15 FEBRUARY
50/50 MIX OF ANNUAL RYEGRASS (lolium multiflorum) &
CEREAL (Winter) RYE (Secale cereale)
50-100 LB / ACRE (1-2 LB / 1000 SF)

15 FEBRUARY TO 30 APRIL
ANNUAL RYEGRASS (lolium multiflorum)
60-100 LB / ACRE (2 LB / 1000 SF)

1 MAY TO 31 AUGUST
GERMAN MILLET
50 LB / ACRE (1 LB / 1000 SF)

LIME:	PH TEST	RECOMMENDED APPLICATION OF AGRICULTURAL LIMESTONE
	BELOW 4.2	3 TONS PER ACRE
	4.2 TO 5.2	2 TONS PER ACRE
	5.2 TO 6	1 TON PER ACRE

FERTILIZER: 10-20-10 (OR EQUIVALENT NUTRIENT) @ 14 LB/1000 SF (600 LB/ACRE) LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2 TO 4 INCHES OF THE SOIL IF POSSIBLE.

MULCH: IF REQUIRED, SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

SOIL CONDITIONING:
INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

TS

SEEDING SCHEDULE

PERMANENT SEEDING MIXTURE

TYPE A	TYPE B (SLOPES 3:1 OR STEEPER)	
15 OCTOBER TO 1 FEBRUARY	KENTUCKY 31 FESCUE	@ 108 LB/AC
K-31 FESCUE @ 5 LB / 1000 SF	RED TOP	@ 2 LB/AC
BORZY WINTER RYE @ 1/2 LB/1000 SF	SEASONAL NURSE CROP*	@ 20 LB/AC
1 FEBRUARY TO 1 JUNE	CROWNVETCH**	@ 20 LB/AC
K-31 FESCUE @ 5 LB / 1000 SF		
ANNUAL RYE @ 1/2 LB / 1000 SF		
1 JUNE TO 1 SEPTEMBER		
K-31 FESCUE @ 5 LB / 1000 SF		
GERMAN MILLET @ 1/2 LB / 1000 SF		
1 SEPTEMBER TO 15 OCTOBER		
K-31 FESCUE @ 5 LB / 1000 SF		
ANNUAL RYE @ 1/2 LB / 1000 SF		

*USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:

MARCH-MAY 15TH	ANNUAL RYE
MAY 16TH-AUG 15TH	FOXTAIL MILLET
AUG 16TH-OCT	ANNUAL RYE
NOV-FEB	WINTER RYE

**IF FLATPEA IS USED, INCREASE TO 30 LB/AC. ALL LEGUME SEED MUST BE PROPERLY INOCULATED. WEEPING LOVEGRASS MAY ALSO BE INCLUDED IN ANY SLOPE OR LOW-MAINTENANCE MIXTURE DURING WARMER SEEDING PERIODS; AD 10-20 LB/AC IN MIXES.

LIME: 90 LB/1000 SF OF PULVERIZED AGRICULTURAL GRADE LIMESTONE (2 TONS/ACRE)

FERTILIZER: 23 LB/1000 SF OF 10-20-10 OR EQUIVALENT NUTRIENTS (1000 LB/ACRE)

MULCH: IF REQUIRED, SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

SOIL CONDITIONING:
INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

PS

SEEDING SCHEDULE

Ben Street and Hillendale Drive Drainage Improvements
Erosion and Sediment Control Narrative

Project Description

Drainage issues have been identified along Ben Street, Hillendale Drive, and Portland Avenue Drive in Roanoke, Virginia. The purpose of this project is to provide new storm drain infrastructure in the form of curb and guttering, strategically placed inlets and storm sewer pipe in order to catch and convey stormwater runoff to existing storm drain systems in the area. The amount of the area to be disturbed is approximately 16,926 square feet (0.40 acres) all within the public right-of-way. An overall reduction in impervious area is anticipated as a part of this project.

EXISTING SITE CONDITIONS

The vast majority of the project area is contained within the existing rights-of-way. Right-of-entry permits will be obtained for any necessary work outside the existing right-of-way. Ben Street, Hillendale Drive and Portland Avenue are currently paved roads. Stormwater within the project area is contained within two separate drainage basins. No springs, creeks, or surface water have been noted within the site area.

ADJACENT AREAS

Adjacent areas consist of residential and commercial lots with a mix of grass, commercial and residential buildings, and various amounts of impervious areas for parking and pedestrian traffic. There should be no other effect on any adjacent properties as long as Erosion and Sediment Control Measures are maintained until permanent stabilization is established.

OFFSITE AREAS

There will be no offsite areas associated with this project.

SOILS

The USDA soils map shows the project area as mixture of Combs loam (8A) on 0-2% slopes, Frederick silt loams (18B, 18C) on 2-15% slopes, Frederick-Urban land complex (21C) on 2-15% slopes, and Timberville silt loam (48B) on 2-7% slopes,. The Combs loam has a Hydrologic Rating of "A". The Frederick loams, Frederick-Urban land complex, and Timberville loams have a Hydrologic Rating of "B". A soils map and soils description is included in the appendices.

CRITICAL AREAS

No critical areas have been identified on the site.

EROSION AND SEDIMENT CONTROL MEASURES

The following measures will be used to control erosion and sedimentation on the proposed project. In addition to the below measures all applicable Minimum Standards will be strictly adhered to. The specifications that follow are taken from the *Virginia Erosion and Sediment Control Handbook, 1992 Edition.*

3.05 Silt Fence
3.07 Storm Drain Inlet Protection
3.08 Culvert Inlet Protection
3.18 Outlet Protection
3.31 Temporary Seeding
3.32 Permanent Seeding
3.35 Mulching
3.38 Tree Preservation & Protection

PERMANENT STABILIZATION

Immediately after all disturbance and grading is completed the site will be permanently stabilized through the installation of hardscape surfaces such as asphalt and curb and gutter as well as permanent seeding. Within one year of stabilization the site will be inspected and bare areas will be re-stabilized.

STORMWATER RUNOFF CONSIDERATIONS

The Rational Method was utilized as the methodology for all storm water calculations associated with this project. Additionally, the project is being submitted under the City of Roanoke's Stormwater Linear Development Ordinance, as amended on April 2, 2012 with City Ordinance Number 39340-040212, which allows for an exemption for water quantity or quality controls based on the following criteria:

Provided that where less than 1 acre of land will be disturbed per outfall or watershed, there will be insignificant increases in peak flow rates, and there are no existing or anticipated flooding or erosion problems downstream of the discharge point as determined by the administrator.

There is no new impervious area associated with this project. In fact, there will be and overall reduction in total impervious area as in some areas the existing section of the roadway is being reduced. All work will be conducted within the existing edges of pavement and driveways inside the right-of-ways of Ben Street, Hillendale Drive, and Portland Avenue. The new road section will remain within the existing edges of pavement and will slightly reduce the overall impervious area along Ben Street, Hillendale Drive, and Portland Avenue. Thus, there will be no increase to overall peak flow rates as a result of this construction, and in-keeping with the criteria for the linear exemption, less than one acre of land will be disturbed as a result of these construction activities.

Calculations have been provided demonstrating the adequacy of the proposed storm drain pipes to be installed as well as their receiving channels.

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PORTLAND AVENUE, BEN STREET AND HILLENDALE DRIVE IMPROVEMENTS

CITY OF ROANOKE, VIRGINIA

COMMONWEALTH OF VIRGINIA
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SHEET TITLE: EROSION AND SEDIMENT CONTROL DETAILS

SHEET NUMBER: C5-05

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VESCH MINIMUM STANDARDS:

1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

   RESPONSE: DISTURBED AREAS WILL BE STABILIZED AS NOTED ON THESE PLANS. STABILIZED AREAS WILL BE INSPECTED WEEKLY AND AFTER SIGNIFICANT PRECIPITATION.

2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

   RESPONSE: STOCKPILES AND BORROW AREAS WILL BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES. THIS PERTAINS TO STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL TRANSPORTED OFFSITE.

3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

   RESPONSE: DISTURBED AREAS WILL BE SEEDED AS NOTED ON THESE PLANS. AN INSPECTION SCHEDULE IS INDICATED IN THE MS 1 RESPONSE.

4. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND–DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

   RESPONSE: THERE ARE NO SEDIMENT BASINS, SEDIMENT TRAPS, PERIMETER DIKES, OR SEDIMENT BARRIERS TO BE USED IN THIS PROJECT.

5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

   RESPONSE: THERE ARE NO EARTHEN STRUCTURES SUCH AS DAMS, DIKES, OR DIVERSIONS BEING USED IN THIS PROJECT.

6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.

   A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE A 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.

      RESPONSE: THERE ARE NO SEDIMENT TRAPS BEING USED IN THIS PROJECT.

   B. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY–FIVE YEAR STORM OF 24–HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OF THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

      RESPONSE: THERE ARE NO SEDIMENT BASINS BEING USED IN THIS PROJECT.

7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.

   RESPONSE: THERE IS ONLY A MINIMUM AMOUNT OF GRADING WITH THIS PROJECT. THERE WILL NOT BE ANY CUT OR FILL SLOPES ANTICIPATED WITH THIS PROJECT.

8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.

   RESPONSE: NO CONCENTRATED RUNOFF SHALL BE ALLOWED TO FLOW DOWN GRADED SLOPES.

9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

   RESPONSE: THERE SHALL BE NO STEEP SLOPE FACES CONSTRUCTED DURING THIS PROJECT.

10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT–LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.

    RESPONSE: THERE SHALL BE NO STEEP SLOPE FACES CONSTRUCTED DURING THIS PROJECT.

10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT–LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.

    RESPONSE: ALL STORM SEWER INLETS THAT WILL BE SUBJECT TO RUNOFF FROM THE PROJECT AREA WILL BE PROTECTED WITH INLET PROTECTION SO SEDIMENT-LADEN RUNOFF CANNOT ENTER THE SYSTEM WITHOUT BEING FILTERED OR TREATED TO REMOVE SEDIMENT.

11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.

    RESPONSE: THERE WILL BE NO STORMWATER CONVEYANCE CHANNELS CONSTRUCTED DURING THIS PROJECT.

12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.

    RESPONSE: THERE WILL BE NO WORK PERFORMED IN A LIVE WATERCOURSE DURING THIS PROJECT.

13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWCE IN ANY SIX–MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.

    RESPONSE: THERE WILL BE NO WORK PERFORMED IN A LIVE WATERCOURSE DURING THIS PROJECT.

14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

    RESPONSE: THERE WILL BE NO WORK PERFORMED IN A LIVE WATERCOURSE DURING THIS PROJECT.

15. THE BED AND BANKS OF WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

    RESPONSE: THERE WILL BE NO WORK PERFORMED IN A LIVE WATERCOURSE DURING THIS PROJECT.

16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

    A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
    B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
    C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF–SITE PROPERTY.
    D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
    E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
    F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

    RESPONSE: ALL UNDERGROUND UTILITY LINES TO BE INSTALLED WILL BE INSTALLED IN ACCORDANCE WITH THE ABOVE STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA.

17. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THEN END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND–DISTURBING ACTIVITIES.

    RESPONSE: MEASURE WILL BE USED TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO PAVED OR PUBLIC ROADS. ROAD SURFACES WILL BE CLEANED THOROUGHLY AT THE END OF THE DAY WHEN SEDIMENT IS TRACKED ONTO A PAVED OR PUBLIC ROAD SURFACE. SEDIMENT WILL BE REMOVED BY SWEEPING OR SHOVELING AND TAKEN TO A SEDIMENT CONTROL DISPOSAL AREA. NO STREET WASHING WILL BE ALLOWED UNTIL AFTER SEDIMENT IS REMOVED.

18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

    RESPONSE: ALL TEMPORARY MEASURES WILL BE REMOVED WITHIN 30 DAYS OF FINAL STABILIZATION, UNLESS AUTHORIZED BY THE CITY OF ROANOKE. ALL TRAPPED SEDIMENT AND DISTURBED SOIL AREAS FROM REMOVAL OF MEASURE WILL BE PERMANENTLY STABILIZED.

19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24–HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:

    A. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN–MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
    B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
       1. THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO–YEAR STORM
       2A. TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS; AND ALL PREVIOUSLY CONSTRUCTED MAN–MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN–YEAR STORM
       2B. TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO–YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN–YEAR STORM
       2C. TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
    C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN–MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
       (1) IMPROVE THE CHANNEL TO A CONDITION WHERE A TEN–YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO–YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR
       (2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN–YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR
       (3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE–DEVELOPMENT PEAK RUNOFF RATE FROM A TWO–YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE–DEVELOPMENT PEAK RUNOFF RATE FROM A TEN–YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN–MADE CHANNEL; OR
       (4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.
    D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
    E. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.
    F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
    G. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
    H. ALL ON–SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
    I. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
    J. IN APPLYING THESE STORMWATER RUNOFF CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
    K. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.
    L. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN–MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN–MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO:
       i. DETAIL THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS
       ii. DETAIL AND RELEASE OVER A 24–HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24–HOUR STORM
       iii. REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10–YEAR, 24–HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN–MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATES PURSUANT TO §10.1–562 OR 10.1–570 OF THE ACT.
    M. FOR PLANS APPROVED ON AND AFTER JULY1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF §10.1–561 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§10.1–503.2 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND–DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 4VAC50–60–48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS.
    N. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 4VAC50–60–66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF MINIMUM STANDARD 19.

    RESPONSE: THIS PROJECT FALLS UNDER THE LINEAR EXEMPTION ORDINANCE FOR THE CITY OF ROANOKE.

EROSION & SEDIMENT CONTROL MEASURES MAINTENANCE SCHEDULE

E&SC SYMBOL	MAINTENANCE INSTRUCTIONS
IP	THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
PS	EVEN WITH CAREFUL, WELL–PLANNED SEEDING OPERATIONS, FAILURES CAN OCCUR. WHEN IT IS CLEAR THAT PLANTS HAVE NOT GERMINATED ON AN AREA OR HAVE DIES, THESE AREAS MUST BE RESEEDED IMMEDIATELY TO PREVENT EROSION DAMAGE. HOWEVER, IT IS EXTREMELY IMPORTANT TO DETERMINE FOR WHAT REASON GERMINATION DID NOT TAKE PLACE AND MAKE ANY CORRECTIVE ACTION NECESSARY PRIOR TO RESEEDING THE AREA.
MU	ALL MULCHES AND SOIL COVERINGS SHOULD BE INSPECTED PERIODICALLY (PARTICULARLY AFTER RAINSTORMS) TO CHECK FOR EROSION. WHERE EROSION IS OBSERVED IN MULCHED AREAS, ADDITIONAL MULCH SHOULD BE APPLIED. NETS AND MATS SHOULD BE INSPECTED AFTER RAINSTORMS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, RE–INSTALL NETTING OR MATTING AS NECESSARY AFTER REPAINING DAMAGE TO THE SLOPE OR DITCH. IMSPECTIONS SHOULD TAKE PLACE UP UNTIL GRASSES ARE FIRMLY ESTABLISHED. WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE; REPAIR AS NEEDED.
TP	IN SPITE OF PRECAUTIONS, SOME DAMAGE TO PROTECTED TREES MAY OCCUR. IN SUCH CASES, THE FOLLOWING MAINTENANCE GUIDELINES SHOULD BE FOLLOWED: A. SOIL AERATION – IF THE SOIL HAS BECOME COMPACTED OVER THE ROOT ZONE OF ANY TREE, THE GROUND SHALL BE AERATED BY PUNCHING HOLES WITH AN IRON BAR. THE BAR SHALL BE DRIVEN 1–FOOT DEEP AND THEN MOVED BACK AND FORTH UNTIL THE SOIL IS LOOSENED. B. REPAIR OF DAMAGE 1) ANY DAMAGE TO THE CROWN, TRUNK, OR ROOT SYSTEM OF ANY TREE RETAINED ON THE SITE SHALL BE REPAIRED IMMEDIATELY. 2) WHENEVER MAJOR ROOT OR BARK DAMAGE OCCURS, REMOVE SOME FOLIAGE TO REDUCE THE DEMAND FOR WATER AND NUTRIENTS. 3) DAMAGED ROOTS SHALL IMMEDIATELY BE CUT OFF CLEANLY INSIDE THE EXPOSED OR DAMAGED AREA. CUT SURFACES SHALL BE PAINTED WITH APPROVED TREE PAINT, AND MOIST PEAT MOSS, BURLAP, OR TOP–SOIL SHALL BE SPREAD OVER THE EXPOSED AREA. 4) TO TREAT BARK DAMAGE, CAREFULLY CUT AWAY ALL LOOSENED BARK BACK INTO THE UNDAMAGED AREA, TAPER THE CUT AT THE TOP AND BOTTOM, AND PROVIDE DRAINAGE AT THE BASE OF THE WOUND (PLATE 3.38–8). 5) ALL TREE LIMBS DAMAGED DURING CONSTRUCTION OR REMOVED FOR ANY OTHER REASON SHALL BE CUT OFF ABOVE THE COLLAR AT THE PRECEDING BRANCH JUNCTION (PLATE 3.38–8). 6) CARE FOR SERIOUS INJURIES SHALL BE PRESCRIBED BY A FORESTER OR A TREE SPECIALIST. C. FERTILIZATION BROADLEAF TREES THAT HAVE BEEN STRESSED OR DAMAGED SHALL RECEIVE A HEAVY APPLICATION OF FERTILIZER TO AID THEIR RECOVERY. 1) TREES SHALL BE FERTILIZED IN THE LATE FALL (AFTER OCTOBER 1) OR THE EARLY SPRING (FROM THE TIME FROST IS OUT OF THE GROUND UNTIL MAY 1). FALL APPLICATIONS ARE PREFERRED, AS THE NUTRIENTS WILL BE MADE AVAILABLE OVER A LONGER PERIOD OF TIME. 2) FERTILIZER SHALL BE APPLIED TO THE SOIL OVER THE FEEDER ROOTS (SEE PLATE 3.38–9). IN NO CASE SHOULD IT BE APPLIED CLOSER THAN 3 FEET TO THE TRUNK. THE ROOT SYSTEM OF CONIFERS EXTENDS SOME DISTANCE BEYOND THE DRIP LINE. INCREASE THE AREA TO BE FERTILIZED BY ONE FOURTH THE AREA OF THE CROWN. 3) FERTILIZER SHALL BE APPLIED USING APPROVED FERTILIZATION METHODS AND EQUIPMENT.

STANDARD EROSION & SEDIMENT CONTROL NOTES:

ES–1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS VR 625–02–00 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES–2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE–CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES–3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES–4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES–5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF–SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.

ES–6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES–7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES–8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES–9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF–PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

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PORTLAND AVENUE, BEN STREET AND HILLENDALE DRIVE IMPROVEMENTS

CITY OF ROANOKE, VIRGINIA

COMMONWEALTH OF VIRGINIA
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09/20/2016
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REVISIONS

NO.	COMMENTS	DATE

PROJECT TEAM

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ISSUE DATE: 09/20/2016

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